THE IRON AGE

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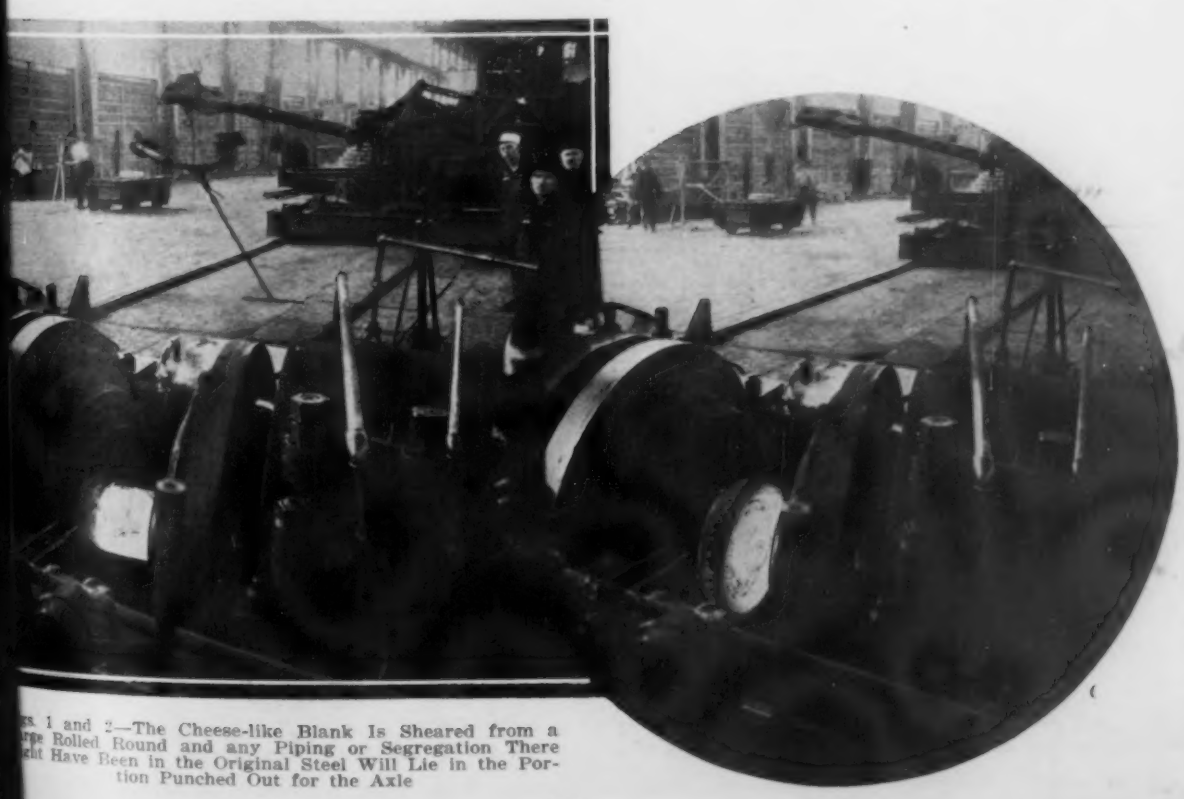
THE SLICK WHEEL MILL

Commercial Products Formed Directly from Large Rolled Bars by Rolling-Forging Process at Cambria Steel Works

AMONG the first solid rolled steel wheels which were made in the United States were those formed, about 15 years ago, from a flat slab f steel, the blank being punched or pressed into at cylindrical form and then finished in a rolling ill, these being an adaptation of continental Euro-ean types of rolled wheel centers, but with integral read and flanges. While this was found to pro-uce a good wheel, the material of the steel nat-rally varies throughout the circumference, due to the fact that it is rolled from a flat slab, and such wheels are consequently regarded as not best adapted to withstand the severe services of increasing wheel loads and speeds. Other car wheels were made by forging small ingots or from blanks or sections cut from longer ingots, and sometimes finishing the tread and rim in what is known as tread rolls.

Recognizing all the difficulties of steel-wheel manufacture and the severe requirements of use, E. E.



gs. 1 and 2—The Cheese-like Blank Is Sheared from a rge Rolled Round and any Piping or Segregation There ght Have Been in the Original Steel Will Lie in the Portion Punched Out for the Axle

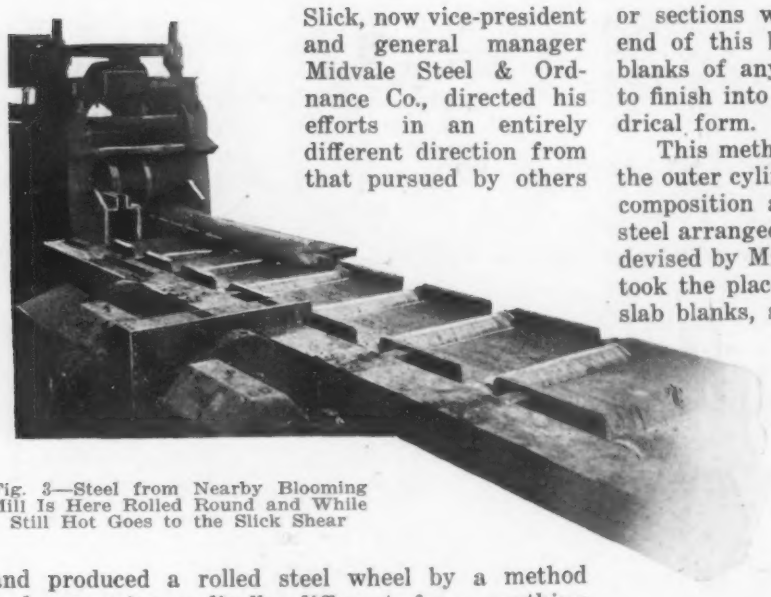


Fig. 3—Steel from Nearby Blooming Mill Is Here Rolled Round and While Still Hot Goes to the Slick Shear

Slick, now vice-president and general manager Midvale Steel & Ordnance Co., directed his efforts in an entirely different direction from that pursued by others and produced a rolled steel wheel by a method and apparatus radically different from anything which had been proposed. He began with a standard size ingot and rolled it in a large two-high mill, producing a cylindrical bar from 11 in. to 20 in. in diameter, instead of using a flat slab. He also devised a rotary shear into which the end of the hot rolled cylindrical bar was introduced and slices or sections were cut one after another from the end of this bar, thus producing short cylindrical blanks of any size or weight which were adapted to finish into a wheel or gear blank or other cylindrical form.

This method of producing a blank provides one, the outer cylindrical surface of which is of uniform composition and with the various portions of the steel arranged in radial relation. This rotary shear devised by Mr. Slick was so novel and useful that it took the place of older methods such as using flat slab blanks, short ingots or longer ingots cut cold into blanks in a lathe and replaced the older methods and machines at the Carnegie and Schoen wheel plants and the Midvale wheel plant when the latter was recently removed to Johnstown.

These blanks are transported to a heating furnace and they are heated gradually as necessary for the high carbon steel used in making the wheels. Between the furnace and the Slick wheel mill proper is a piercing machine which projects a short steel punch or mandrel part way into the center of the blank, making a cylindrical opening in the center thereof, and as this blank is intro-

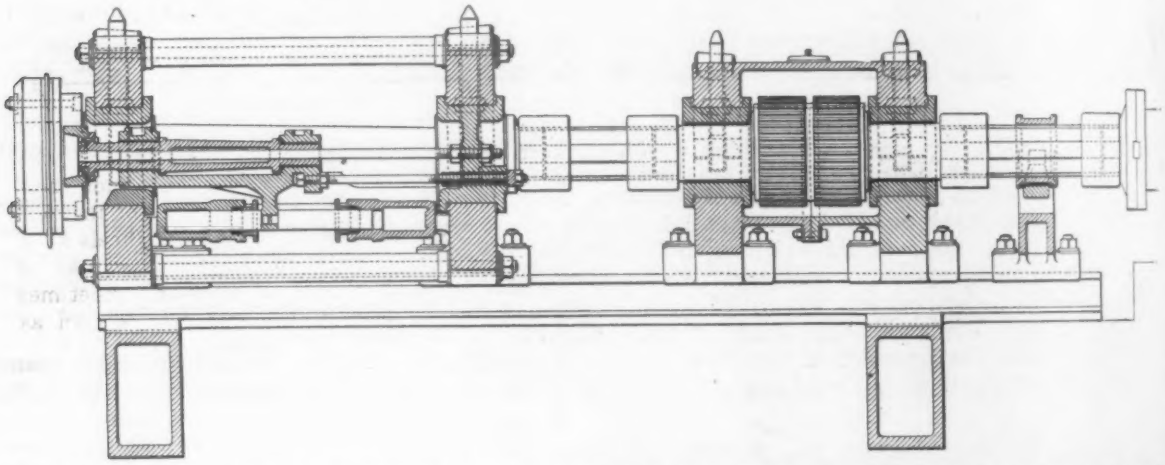


Fig. 4—The Hot Steel Round to be Sheared Is Brought Up Against the Hydraulically Manipulated Guide at the Left

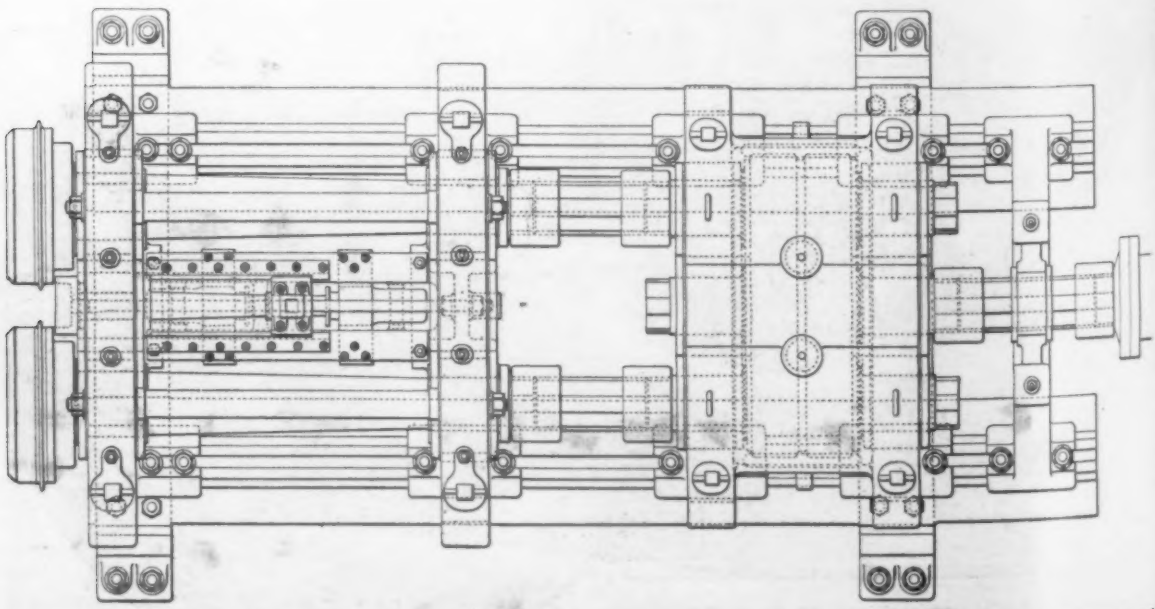


Fig. 5—The Plan of the Slick Shear Shows How the Two Shear Blades at Left Are Driven as from an Engine Coupled at the Right

duced into the wheel mill, a loose pin or mandrel which is previously placed in position, is projected into this opening; and as the wheel is pressed and rolled in the wheel mill, this mandrel holds the blank centrally in position and at the same time forms the major portion of the length of the bore of the wheel or blank. The mandrel remains in the wheel or blank as it is rolled and is withdrawn from the mill.

The blanks are drawn one by one from the furnace and, after having been introduced into the piercing machine as above mentioned, are transferred one at a time into the wheel mill. This includes a pair of dies so arranged that the axis of one of the dies is at an angle to that of the other die. A hydraulic plunger of enormous size projects one die towards its companion die and an electric motor which can develop from 1000 to 2000 hp, or thereabouts, dependent on the size and amount of work to be done on the blank, is provided, for rotating one of the angularly disposed dies which by friction also rotates the companion die and the blank which is clamped between them. One of the dies is rotated by the motor, thus rotating the blank and the other die as the other die is pressed toward it by hydraulic pressure. The blank is shortened and assumes the reverse form of the dies as the pressure and rotation continue. A thrust of 3,000,000 lb. or more is taken up by large thrust bearings which are believed to be the largest in the world. This method devised by Mr. Slick has the advantage of rolling the steel under cumulative pressure, thus working every portion

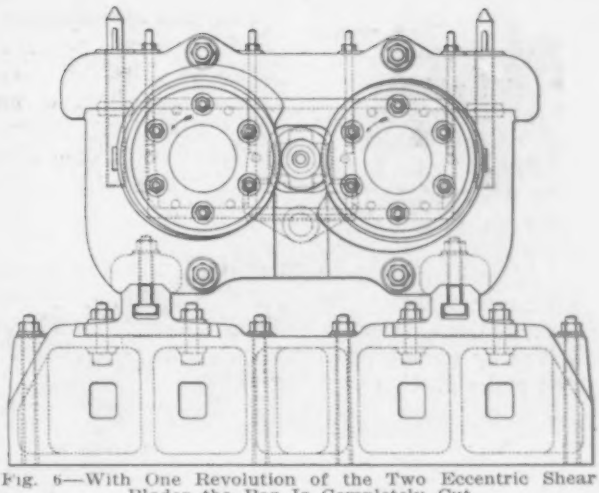


Fig. 6—With One Revolution of the Two Eccentric Shear Blades the Bar Is Completely Cut

of the blank into a wheel or other annular shape.

The time required to roll a blank into a wheel or other annular shape varies, depending upon the size of the blank and the kind of work to be done, from 20 sec. for the smaller sizes and least work to about 1 min. for the larger sizes with the most work, so that in this manufacture all the steel material of the blank is quickly as well as thoroughly worked.

A slight amount of excess material is provided in the blank which is rolled out in the edge in the form of a fin and when the rolling is completed, the wheel is withdrawn from the mill, placed in a fin shearing machine, also of Mr. Slick's design, where the fin is sheared off by rotary shears and the mandrel is also pushed out and the punching of the bore is finished.

In addition to rolling freight, passenger, electric and other car wheels, the Slick mill is also particularly adapted to rolling gear blanks and automobile flywheels and is especially useful in producing solid rolled steel wheel centers such as have been used in foreign countries for many years to which separate tires are applied as noted.

In order more clearly to understand the Slick method and appar-

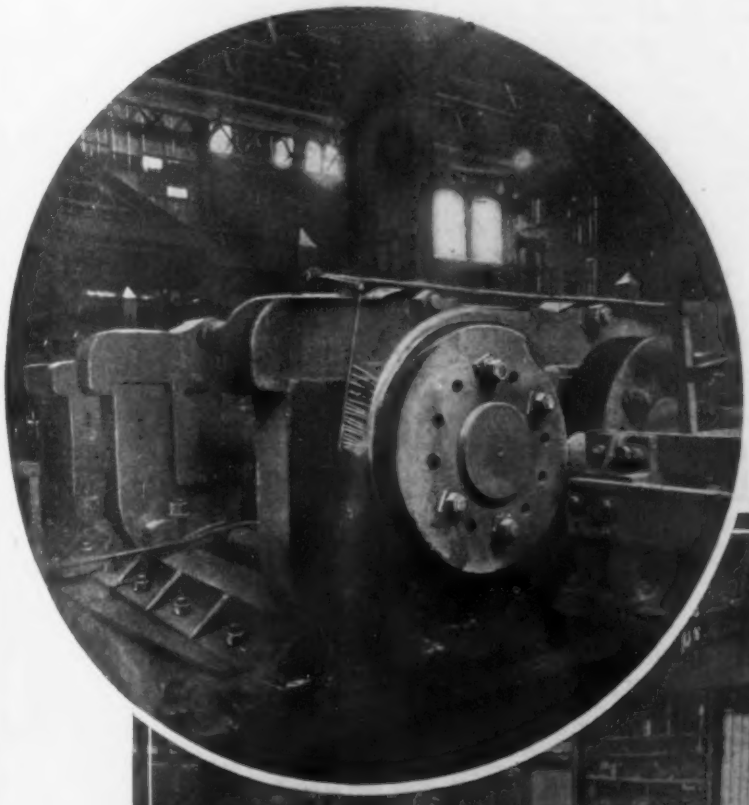


Fig. 7—The Shear Blades are Cooled by Water Sprays
Fig. 8—The Bar to be Cut Lying on a Longitudinal Roller Is Revolved While Being Cut

atus for rolling wheels and all kinds of circular blanks, a number of illustrations are presented herewith which will be referred to in the order of the manufacture and which will give a better idea of this subject than any written description.

Fig. 3 is an illustration of a rolling mill with rolls designed for rolling round bars from which hot sections of cylindrical shape are cut for wheel blanks.

After leaving the mill the bar is taken to the Slick rotary shear, Figs. 4 ,5, 6, 7 and 8. It should be noted that the shear-heads overhang and are driven by an engine connected to the central shaft. The end elevation drawing shows the shape of the eccentric shear-knives. In the photographic illustrations of the rotary shear a round bar is shown in place, supported by rollers, ready to be moved forward to have a cylindrical wheel blank cut therefrom by the rotary shear. The round bar is, as stated, still hot with its initial heat as delivered from the bar mill. The bar is supported on rollers and is advanced forward step by step as each piece is cut off, and the cut blanks, in the form of short cylinders, are dropped in a car or box below and then moved out in large lifts by a crane. The rotary shear is designed to cut large bars quickly in order that all the blanks may be cut from one bar before the next bar is delivered from the mill

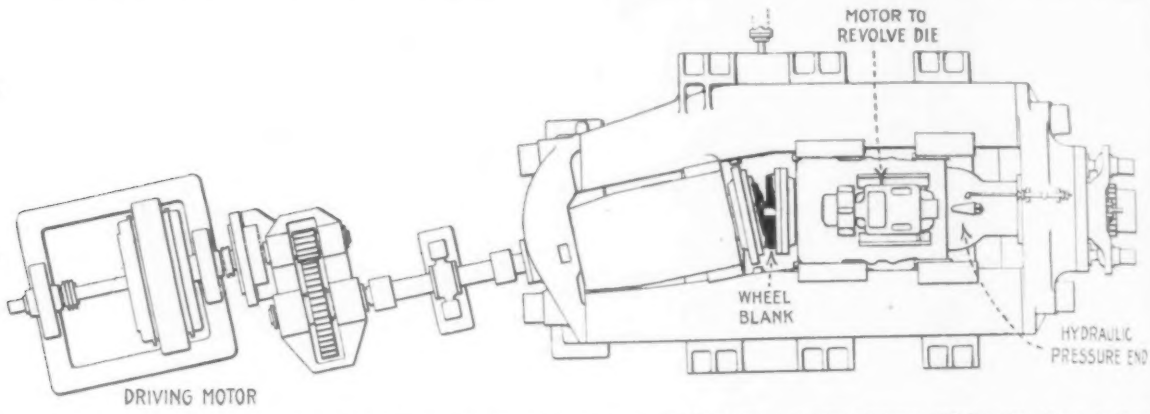


Fig. 9—The Two Rolling Dies Lie at an Angle to Each Other and One Is Electrically Driven While the Other Is Brought Against the Blank by High Hydraulic Pressure

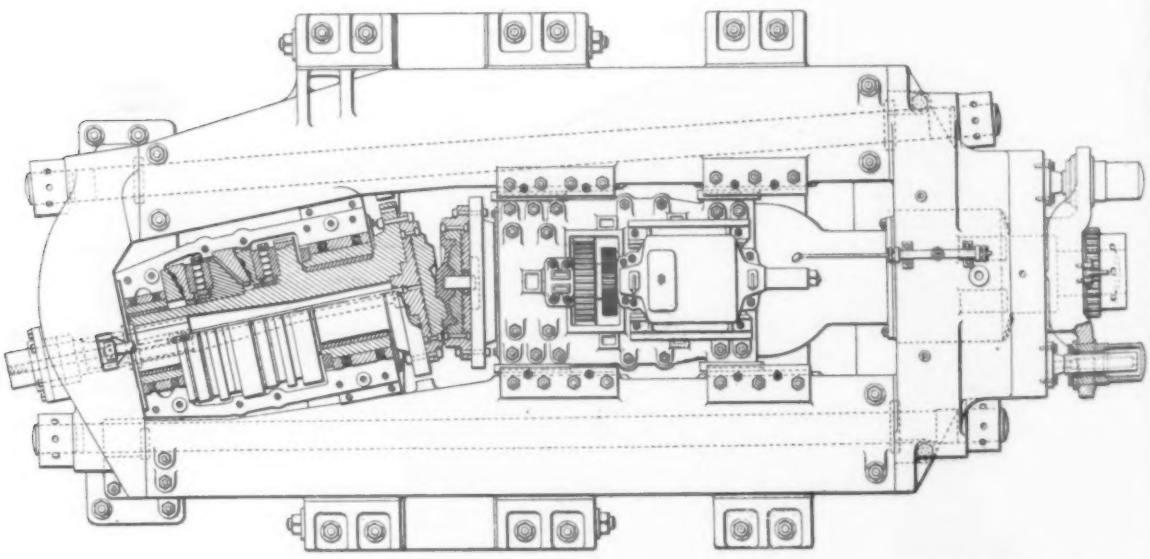


Fig. 10—The Section of the Power Driven End of the Mill Shows Also How the Rolling-Forging Is Done

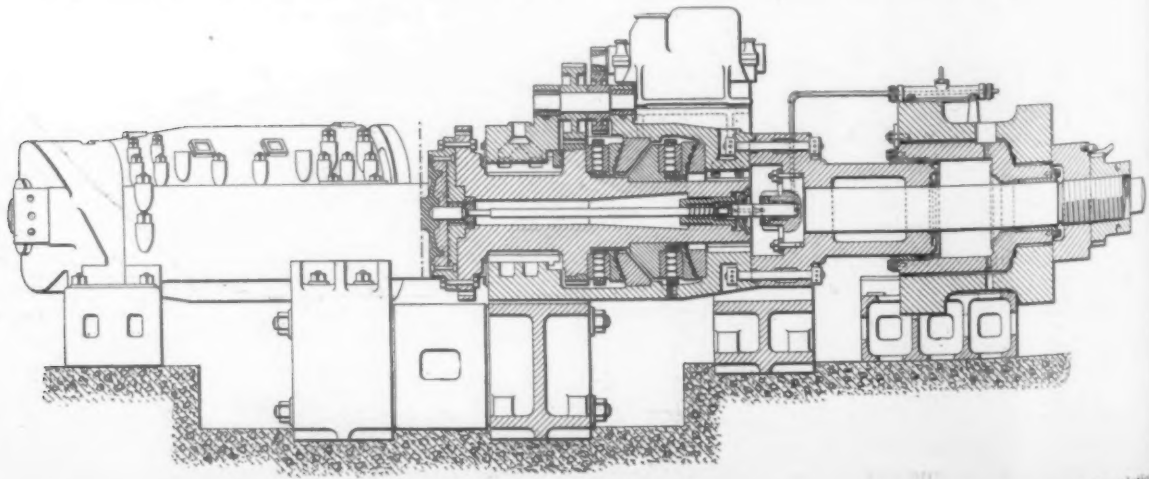


Fig. 11—The Section of the Hydraulic End Shows the Centering Mandrel Mechanism and the Motor to Start Revolution of This End of the Mill

and also to cut these while the bar is still hot. Each blank is cut in about 8 sec.

The rotary shear employs a pair of large disks arranged with their axes parallel, each disk composed of two pieces mounted on a large shaft and holding clamped between them by means of suitable bolts, the shear blades proper. The disks are secured on shafts, about 24 in. in diameter, and are opposed to each other, but rotate in the same direction, whereby the disks and knives conform to the rotation of the bar to be cut.

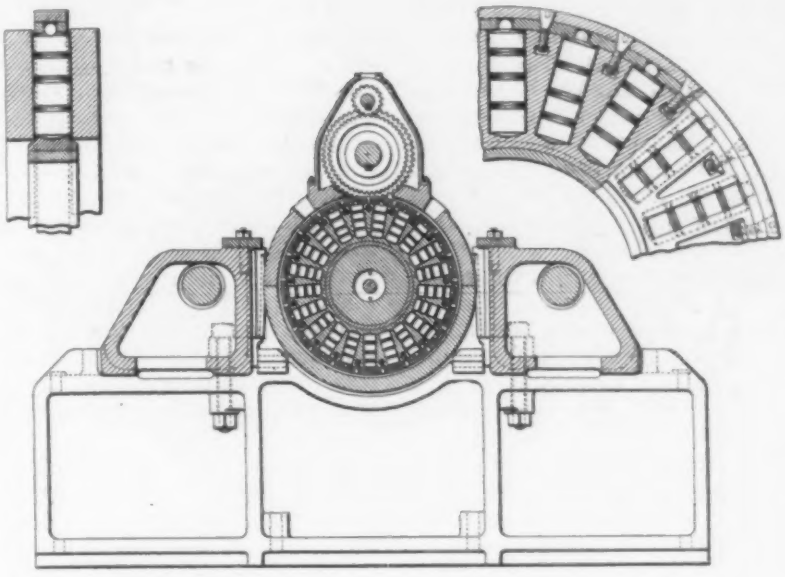


Fig. 12—Both Ends of the Wheel Mill Have Two Annular Thrust Bearings as Shown in Figs. 10 and 11

Different sizes of disks are used to cut bars of different diameters, namely: disks 5 ft. 1 in. diameter for 11-in. rounds; disks 4 ft. 9 in. diameter for 15-in. rounds; disks 4 ft. 8 in. diameter for 16-in. rounds, and corresponding sizes for bars of other diameters, varying from 11 to 20 in. in diameter.

The round bar is carried on a longitudinal, positively driven long roller of large diameter, which supports it throughout its length, and this roller is carried on pairs of idler rollers spaced at intervals throughout the length of the frame. The long carrying roller which supports the round bar is arranged to be adjustable to hold blank bars of different diameters in proper relative position to the shear knives. At the sides of and above the supporting roller are stationary side guides which are designed to contact with the sides of the round bar as it is rotated for shearing and hold it against lateral movement and at the same time guide it longitudinally after one blank has been cut off and the bar is moved forward lengthwise for another cut. The bar is first rolled into position between these guides on skids, which are shown in Fig. 8, after being delivered to the skids from the rolling mill. The roller which supports the bar before and during the shearing operation is positively driven by gear connections having shafts with meshed gearing actuated by an electric motor.

After one end, forming a blank, has been cut from the bar by the rotary shear knives, the bar is pushed lengthwise of the supporting roller between the side guides by means of a rotary pusher. This is mounted on one end of an arm of I-beam section, which is traversed backward or forward longitudinally by a set of electrically driven pinch rolls. The pusher head is constructed and mounted so as to rotate on the arm with the bar.

The shearing mechanism proper consists of the pairs of rotatable disks above mentioned, to which the eccentric shear knives are clamped. The shafts carrying these disks are provided with means for adjustment in the housing to move them slightly to suit the size of the bar and the wear of the knives. Larger adjustments of the knives, however, are made by using disks and shear blades of larger or smaller diameters, corresponding with the size of the bar to be sheared, as already stated. The larger size of bar requires disks and knives of smaller diameter, and vice versa.

A driving-shaft about 24 in. in diameter is connected to each of these disks with their contained knives. The other ends of the shafts are driven by separate pinions contained in a housing of large size, and these two side pinions are driven from a central pinion connected to the engine shaft, as indicated in the drawings.

As shown in Fig. 4, a holder of cupped cylindrical form is provided to receive and guide the forward end of the round bar as it is rotated and cut by the rotating eccentric shear knives. This holder is adjustably mounted longitudinally and can be projected or retracted by a pair of hydraulic plungers as shown. An adjusting rod with a long screw end and nuts is attached to the spindle of the holder and projects through the frame so that it can be set to act as a gage to determine the length of the blank to be cut. During the shearing operation this holder is maintained in its forward position, and it can be retracted to drop the blank. This shear can be driven by a steam engine or electric motor.

In order to give a general idea of the large size of this machine, the following dimensions may be noted: The length of the shear proper is about 36 ft.; the length of the feed apparatus is about 60 ft., and the length of the engine shaft or width of the engine is about 17 ft., so that the whole apparatus is about 113 ft. long. The width of the shearing machine is about 18 ft. overall; the height is 13 ft. 8 in. above foundation and its weight approximately 850,000 lb.

In the operation of this shear, a bar, which is preferably cylindrical in shape, is deposited on the skids illustrated in Fig. 8 and rolled into the space bounded by the side guides as shown, whereupon it rests upon the long supporting roller, which is then positively rotated by the electric motor and connections in the direction of the rotation of the bar when being cut. The pusher then moves the bar forward until its end rests against the holder adjacent to the shear knives. The shear heads or disks are then rotated in an anti-clockwise direction, as indicated in Fig. 6. As the shafts rotate the eccentric knives gradually cut into the bar from diametrically opposite sides in a spiral form of cut, beginning from the outside and finishing at the center, while during the time of cutting, the bar is rotated both by the shear knives and the frictional driving action of the supporting roller, which is positively driven, as mentioned.

The driving of the roller support of the ingot is an important feature, especially toward the end of the operation, as when the bar is partially or almost cut off, the long and heavy end of the bar

could not be rotated by the friction of the knives alone and the cut would be spoiled unless the body of the bar rotated independently and positively.

During the operation of cutting the blank from the bar, the cupped holder guides the end of the bar in proper relation to the knives and holds it until it is severed from the main body of the bar. The holder may then be retracted and the severed blank of cylindrical form or cheese-like section drops into a car or steel box below. The pusher operating the other end is then actuated to move the bar forward the proper distance for the next shearing operation, and the forward end of the bar slides between the disks carrying the eccentric shear knives. At this point in the cycle the smaller diameters of the knives are opposite each other, allowing space for the end of the bar to enter, and the end of the bar is again pushed against the stopper or holder, this holder therefore acting as a gage. Blanks cut in this manner can be cut exact to size and weight and with ends smooth, and this conduces to the next operation, that of rolling in the Slick wheel mill.

The wheel mill is illustrated in line drawings, Figs. 9, 10, 11 and 12. Fig. 9 is also a plan view of the mill on a smaller scale, showing the operating electric motor at the left, this motor having a capacity of from 1000 to 2000 hp., dependent on the size of the blank and the amount of work to be done in rolling it. Fig. 11 shows the pressure plunger, together with the roller thrust bearings and one die with the wheel-blank in place and centered by the mandrel therein. Fig. 12 is a cross sectional elevation of the thrust bearings in position.

Fig. 13 is a view of the discharging end of the heating furnace showing a wheel blank being discharged from the charging car which traverses the front of the furnace and is then transferred to an inclined runway adapted to deliver it by rolling into jaws which deliver it to the piercing press. In this piercing press a punch or mandrel is driven partly into the center of the blank and the blank with central opening is delivered to the wheel mill and placed in position, as shown in Fig. 1. The blank being in position, the pressure plunger is projected forward and the blank is rolled at the same time by the rotation of dies by the electric motor and when the rolling is finished and the die withdrawn, it is in position as shown in Fig. 2. After the wheel or other annular shape has been rolled, it is transported by a peculiarly shaped pair of tongs, operated by workmen, which is adapted to swing on the power jib crane, as illustrated at the head of the article.

The wheel mill, as indicated in the drawings, consists in general of large and massive bed plates and housings which are about 40 ft. long overall, including a large steel casting at one end in which is formed integrally the pressure cylinder containing a hydraulic pressure plunger of 38 in. in diameter, with a tail rod about 18 in. in diameter. To give an idea of the size of the cylinder housing, which is a steel casting made in the works of the Cambria Steel Co., it may be noted it is about 18 ft. wide, 14 ft. high overall and weighs over 50 tons. The sides and ends of the wheel mill frame are formed of large steel castings, and the thrust is taken up by tie bolts each 13 in. in diameter, extending through the machine from end to end and fitted with spanner nuts as illustrated. The side frames are provided with guides, on which slides a cross-head carrying one of the rotating dies at its forward end. This die is mounted on the end of a hollow die holder shaft, provided with collars adapted to rotate within the cross-head when subjected to the pressure from the pressure plunger. This pressure is resisted by large roller thrust bearings, which are about 4 ft. 8½ in. in diameter. The pressure plunger, which projects the one die forward, is 38 in. in diameter and is supplied with pressure from a series of pressure pumps and intensifiers at 3000 lb. or more per square inch, providing a total pressure of more than 3,000,000 lb. for the larger sizes and less amounts for the smaller sizes of blanks or wheels. The companion die at the other end of the machine is rigidly secured to the frame and is fitted with similar roller thrust bearings, and is adapted to be rotated by an alternating-current motor at a speed of about 100 r.p.m., delivering from 1000 to 2000 hp., depending upon the amount of work to be done.

The wheel mill is about 40 ft. long, but including the motor drive is about 70 ft. overall. The width overall is about 18 ft.; the height 14 ft. and the weight of the mill alone without the motor or driving mechanism is 400 tons.

The particular arrangement of this mill resides in the use of a pair of angularly disposed rotating dies which are also subjected to hydraulic pressure to force them together, the axes of the dies being arranged at such an angle that the wheel or blank is rolled by the rotation of the dies under high pressure. In order to limit the movement of one die with respect to the other, the tail rod of the pressure plunger and attached parts is provided with a large nut and keeper, which contacts with the end of the cylinder casting or head in such a way as to stop its forward movement at any desired point, illustrated particularly in Fig. 11 of the drawings. One of the particular features of the arrangement is that the axes of the dies, their shafts and the axes of the large tie rods are all in the same horizontal plane, thus to equalize the stresses put upon the apparatus when rolling and to prevent any undue deformation of the machine when subjected to the tremendous pressures of use.

The apparatus is further provided with pull-back cylinders, as illustrated, acting under a constant pressure of about 500 lb. per square inch, which serve to pull back the pressure die to the open position ready to receive another blank, after the working pressure of the large plunger has been relieved by opening the control valve, allowing the pressure water to exhaust from the pressure cylinder.

In operation, the pressure die is retracted, a mandrel inserted in the center of the pressure die and a blank is supplied by a hydraulically operated jaw and lowered into a position central with the dies with the mandrel entered into its central perforation. The pressure die is then projected forward by hydraulic pressure acting upon the large plunger, whereupon the other die is caused to rotate by starting the electric motor and the friction between the blank and the dies cause both dies to rotate together. On account of their angular relation the blank will be both rotated and rolled to conform accurately to the shape of the dies in a very short time. A little excess metal is provided in the blank, which rolls outwardly on the circumferential edge in the shape of a fin, which is afterwards sheared off in the shearing machine. After the rolling is completed, the pressure die is retracted, the finished wheel or blank is pushed out with the mandrel still remaining in its center and is then taken to the fin shearing and punching machine for further treatment.

This partly finished product is then placed in position on the fin shearing and mandrel punching

Fig. 13—The Wheel Blank from the Heating Furnace Is Center Punched Sufficiently to Receive the Mandrel in the Wheel Mill

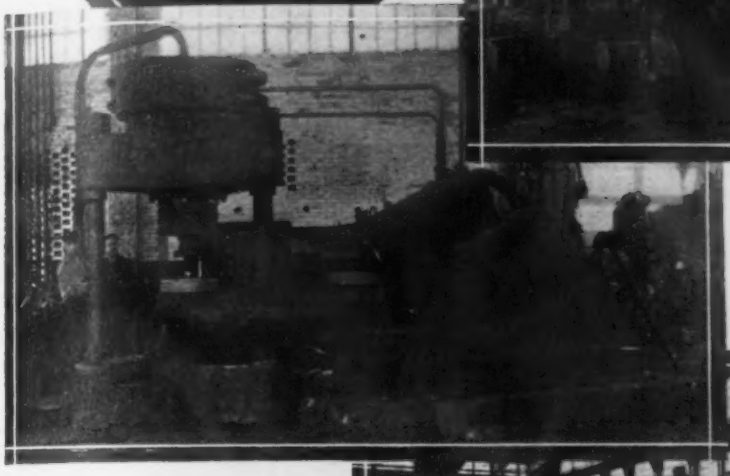


Fig. 14—The Formed Blank from the Wheel Mill Has the Circumferential Fin Removed by Rotary Shears and the Axle Hole Is Then Punched Through

Fig. 15—The Finished Blank Is Piled Mechanically

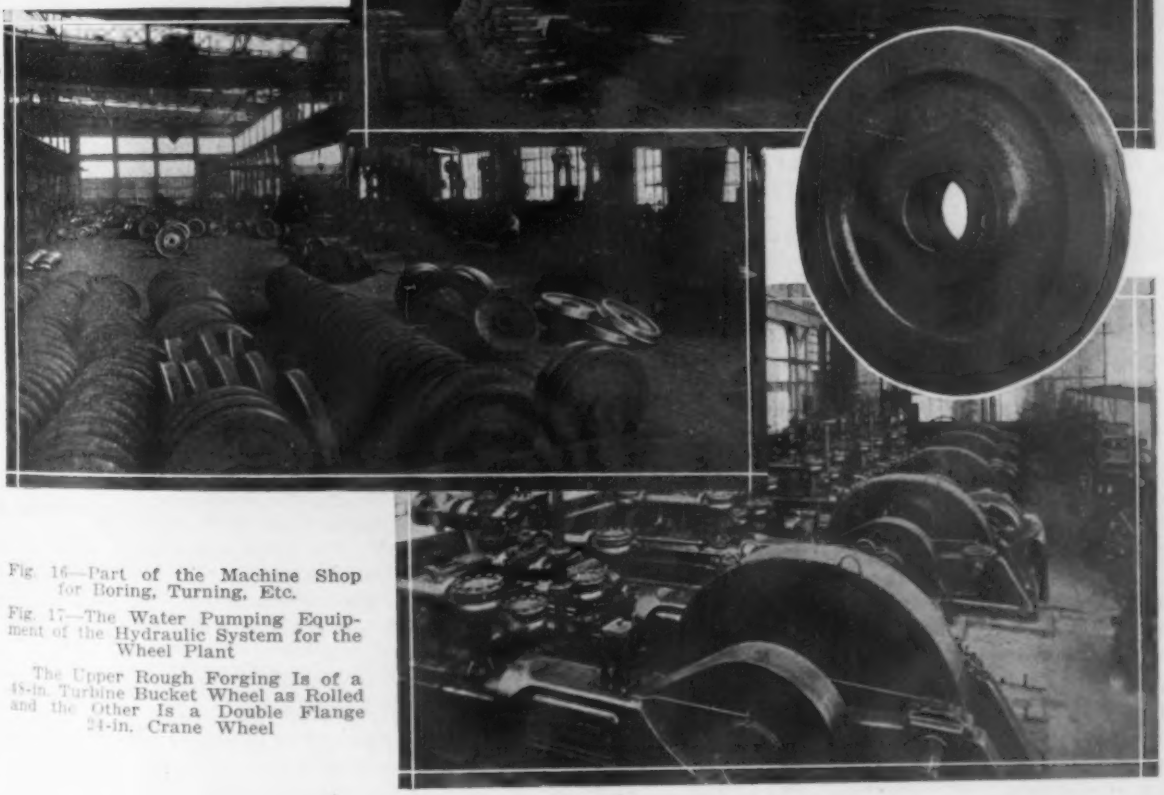


Fig. 16—Part of the Machine Shop for Boring, Turning, Etc.

Fig. 17—The Water Pumping Equipment of the Hydraulic System for the Wheel Plant

The Upper Rough Forging Is of a 48-in. Turbine Bucket Wheel as Rolled and the Other Is a Double Flange 24-in. Crane Wheel

apparatus illustrated in Fig. 14, where the fin is removed by a rotary shear, as illustrated, after which the table carrying the wheel is rotated about one-third of a turn, whereupon it comes under a plunger press in which the mandrel which forms the rough hole for the axle is punched out. After this is done the wheel is picked up by a pair of electrically operated tongs, as illustrated in Fig. 15, and deposited on a pile as shown.

Fig. 16 is a general view of the machine shop and wheel boring and turning mill which is equipped with machine tools adapted to bore, turn and face the wheels where desired. Various kinds of wheels are shown in this illustration in different states of completion. Power for operating all the hydraulic apparatus of the plant is obtained from pressure pumps illustrated in Fig. 17.

One of the unusual products is a rolled double flange 24-in. crane wheel. It is first rolled in the Slick wheel mill with a flat tread and this is then

introduced into another special tread rolling mill of Mr. Slick's design in which the tread and the two flanges are formed. Heretofore, wheels of this kind have had their treads machined out from a rough blank, but by the use of the present apparatus and method the tread and flanges are now rolled, producing a better product, it is held, and one without waste of material or unnecessary machining and labor.

The first Slick rotary shear, wheel mill and plant was installed a few years ago at the works of the Carnegie Steel Co. at Homestead, Pa., and later the Schoen wheel plant of the Carnegie Steel Co. at McKees Rocks, Pa., was changed from the slab process, for which it was first constructed and operated, to the Slick process, using cylindrical blanks.

Mr. Slick has been vice-president and general manager of Midvale Steel & Ordnance Co. for some time and recently the wheel mill and wheel plant described has been installed at the works of the Cambria Steel Co., Johnstown, Pa., a subsidiary company. The Cambria company also operates what is known as its No. 2 mill, which was brought from the works of the Midvale Steel & Ordnance Co. at Nicetown, Philadelphia, and which makes car wheels by first forging a cylindrical blank in large hydraulic power presses and then rolls the web and tread in a web and tread rolling mill of the older form.

A condensed list of the products of the Slick wheel plant at Johnstown is as follows: Automobile flywheel blanks; band wheel flange blanks; bevel roller blanks; gear blanks for bevel, spur and general mill and railway motor gears; car wheels for freight and passenger cars, engine and tender trucks made to M. C. B. standard dimensions of 28 to 38 in. diameter; for electric, street and interurban cars made to A. E. R. A. standard dimensions of 21 to 38 in. diameter; for elevated and subway cars made to special dimensions of 31¼ and 34¼ in. diameter; for mine locomotives and cars; for cinder cars, ore cars and other industrial cars; double flanged crane wheel blanks; pipe flange blanks; shaft coupling blanks; submarine signal blanks and piston blanks. Mr. Slick is designer and patentee of the special apparatus and methods used.

NEW GUN PLANTS

Ordnance Department to Report on Construction —Work Done by Old Factories

WASHINGTON, Aug. 27.—Nineteen of the 26 plants planned by the Ordnance Department for the production of gun carriages and recoil mechanisms have been completed, according to an announcement of the War Department. Four of the remaining seven plants are 98 per cent complete, one is 95 per cent complete, one 90 per cent complete, and the seventh, 85 per cent complete.

To provide plant facilities—buildings and machinery—for the production on a large scale of carriages and recoil mechanisms for artillery of all calibers, the Ordnance Department has expended $24,837,336.

On July 25 the Army Ordnance Department announced the completion of 15 of its 16 gun plants for the forging and machining of cannon, with a total expended or obligated of $74,769,297, including the new plant for big guns being built at Neville Island, Pittsburgh. Altogether, the amount expended or obligated to date to provide facilities for the production of guns, carriages, and recoil mechanisms, totals $99,606,633. This sum does not include provision made for the manufacture of artillery limbers, caissons and ammunition wagons.

As was the case with the gun plants for forging and machining of cannon, a new industry has to be created for the production of gun carriages. The problem of carriage production in America was even more difficult than that of forging and machining cannon. For example, the carriage of the 240-mm. howitzer, the most complex of carriages, comprises about 6000 separate pieces, exclusive of rivets. The carriage for 155-mm. guns or 155-mm. howitzers comprises between 3000 and 3500 individual pieces, exclusive of rivets.

All of the 26 carriage plants are in operation, even those that took over the production of French models. The building of French model carriages in this country necessitated special arrangements with the French Government, the procurement of French drawings of all parts of the carriages, the translation into English measurements of those drawings, the selection of plants to manufacture the carriages, the building of new shops, the manufacture and installation of special machinery, and even the building of machine tools with which to make the machine-tool equipment of the carriage plants; the standardization of manufacture to such a degree that any part produced in any plant should be interchangeable with any similar part produced in any other plant, and all parts produced in American plants should be interchangeable with similar parts produced in French plants.

Two companies are producing carriages for the 155-mm. howitzer. One of these formerly made steel passenger cars and the other safes. A company which formerly manufactured hoisting and mining machinery is making carriages for the 155-mm. gun. There are three types of 75-mm. gun carriages in production at four plants, of which one is a Government arsenal, one produced ordnance before the war, one formerly manufactured automobiles, and another one air brakes.

The most vital part of any artillery carriage is the recoil system, or the "brake," as the French style that part upon which the gun when fired recoils, and which returns the gun to battery or position for firing again. Cast on the side of the recoil mechanism of every French gun are the words, "Be good to your brakes." The recoil mechanisms hold the secret of the guns. Their manufacture presents peculiarly difficult problems. Before the war this country had no facilities whatever for the production of recoil mechanisms. Now recoil mechanisms for the 155's are being made by an elevator company and by an automobile manufacturer, and those for the 75's are being made by a sewing-machine company and a Government arsenal.

Work Stopped Temporarily

BIRMINGHAM, ALA., Aug. 26.—The order by the War Industries Board to suspend work on Dam No. 2 at Muscle Shoals on account of more pressing need of materials at work of a more rush order is construed as temporary. The nitrate plant work will be completed in two months and the force there will then be available for the dam on the other side of the river. The dam will not require iron and steel for a year, needing only cement and rock in the early stages of construction.

The McLain-Carter Furnace Co., Goldsmith Building, Milwaukee, will install a 5-ton open-hearth furnace in the plant of the Malleable Iron Fittings Co., Branford, Conn., which will be ready for operation about Oct. 1. The National Steel Products Co., Bessemer, Ala., also will install a 5-ton McLain-Carter oil-fired open-hearth furnace which will melt steel about Oct. 15. The steel from both of these furnaces will be used in the manufacture of light and medium castings.

Ground was broken last week for the fabricating steel mill of the Birmingham Steel Corporation, Birmingham, Ala. George Brittain, acting for the president, announced the obtaining of options on an additional 37 acres.

Increased Output of Chrome Ore

WASHINGTON, Aug. 27.—Despite labor and transportation difficulties which interfered with the output of chrome ore in the first six months of 1918, the year's production promises to exceed that of 1917 by about 50 per cent. According to the figures compiled by the U. S. Geological Survey, 26,000 gross tons of all grades of chromite were mined in the United States, as compared with 42,700 tons of ore of all grades in 1917. This ore averaged 40 per cent chromic oxide, and is therefore equivalent to 20,800 tons of ore containing 50 per cent chromic oxide, that percentage having been adopted as a standard. But these figures do not necessarily indicate that the production for the year 1918 will be only 52,000 tons of all grades, or double the production during the first half of the year, for mining was done under very unfavorable conditions during the first four months of 1918, and many mines were not opened until April or May. The production of the first six months of 1918 may therefore be estimated at about one-third of the production for the year, which would amount to 65,000 to 75,000 tons of all grades of ore, equivalent to 52,000 to 60,000 tons of ore containing 50 per cent chromic oxide.

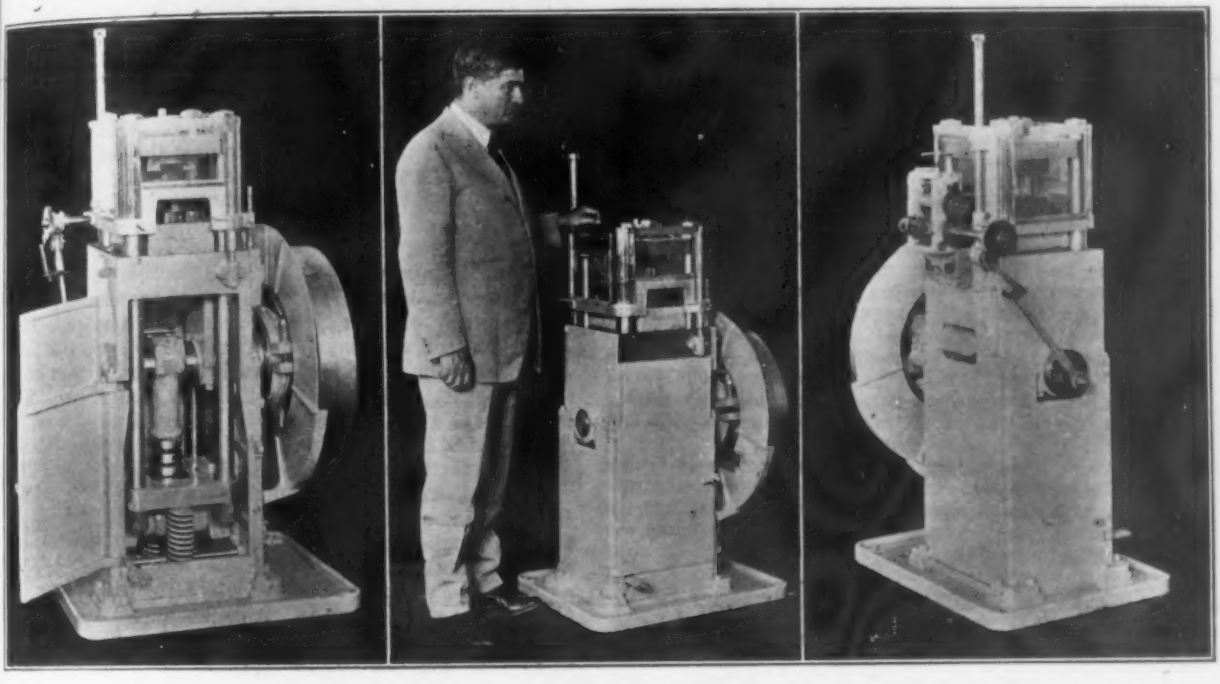
The shipments from Jan. 1 to June 30 amounted to about 18,000 tons of ore of all grades, equivalent to 14,400 tons containing 50 per cent chromic oxide. The labor conditions in the chromite industry in California and Oregon have been as unfavorable as those in other industries. Transportation has been difficult, particularly the hauling from the mines to points for shipment by railroad and water. The roads were put in better condition by the end of June, however, and they will probably be further improved during the last half of the year. The market for chromite was very poor until late in March but improved somewhat during April and May and was fairly good in June. The prices paid for chromite of different grades have been established by the large buyers.

Bids for the construction of a fleet of several score of steel barges and about seven steel towboats will be called for in about 30 days, according to word received at St. Louis from Washington where A. W. Mackie manager of the Mississippi River operations was in conference last week with M. J. Sanders federal manager of the Mississippi and Warrior Waterways for the utilization of which $8,000,000 has been appropriated.

Sheet Metal Dying Machine

For blanking, piercing, forming, coining or drawing sheet metal, the Henry & Wright Mfg. Co., Hartford, Conn., is building what it calls a dying machine which was designed by its general manager, D. M. Wright. The machine differs very radically from existing designs in that the driving mechanism is located below the die plates instead of above and the upper die is pulled down on the metal instead of being pushed from above. Finger motions, automatic feeding mechanisms, scrap cutters, dial feeding devices, etc., can all be readily attached to the machine if desired.

The machine is belt driven, the flywheel being 24 in. in diameter with a 4-in. face. From this shaft the power is transmitted by a simple crankshaft, although any of the ordinary forms of eccentric motion can be substituted. The operation of the machine is controlled by a foot lever for single operation work, while a hand lever located near the wheel guard is provided where continuous operation is desired. The upper die which is supported on four sides as compared with two in the older design is pulled down on the work. In placing the dies in the machine the shank of the upper die holder is set through the top plate and the bolt which draws it up tightened. The lower die is fitted to the upper one and the frame lowered so that the lower die fits into the die bed. An adjustment of the depth gage to the required position completes the setting.



Locating the Driving Mechanism Below the Die Plates and Pulling the Upper Die Down Is the Special Feature of a New Machine Designed for Blanking, Piercing, Forming or Drawing Sheet Metal

To make it impossible for the operator to start the machine while his hand is in a dangerous position, a safety device consisting of a cage fitting entirely over the top of the machine is provided. It is pointed out that to get a hand or finger between the dies the cage must be raised, and when this is done the machine is locked against operation until the cage is lowered. The machine may be operated from a sitting or standing position, and the dies may be fed from any one of the four sides, holes that are sufficiently large for the metal to be operated upon to enter, but not large enough for the entrance of either a finger or hand being provided in the cage.

The rated capacity of the machine illustrated is 25 tons, and the floor space required measures 24 x 31½ in. The over-all height of the machine is 52 in.

The New England Machinery Co., New Haven, Conn., has changed its name to the New England Wire Machinery Co.

SCRAP WRONGLY CLASSIFIED

Chairman Phillips of Committee Calls Attention of Buyers to Violation of Rules

A serious shortage of good heavy melting steel has arisen because of the practice of many scrap yards in picking out the better grade and classifying it as "unguaranteed low phosphorus." Therefore, W. Vernon Phillips, chairman of the Sub-committee on Scrap Iron and Steel, American Iron and Steel Institute, has sent a letter of warning to all operators of basic and acid open-hearth furnaces and crucible and electric steel plants. C. A. Barnes, secretary American Board of Scrap Dealers, has notified the members of that organization that this practice will not be tolerated. Mr. Phillips' letter follows:

Due to an attempt on the part of many dealers to assort their scrap for the purpose of picking out the better grade and selling it under class 2 C, and improperly described by them as "unguaranteed low phos," a serious shortage of good heavy melting steel has arisen.

We understand there is a substantial supply of this so-called "unguaranteed low phos" and "special steel." Some mills have gone so far as to encourage this infraction by purchasing material of this character, and it is now necessary for us to ask the co-operation of all buyers of steel scrap to stamp out this evil by refusing to pay over $29 delivered for any kind of steel scrap, and for acid furnaces to purchase material guaranteed under 0.04 in phosphorus and sulphur, excepting that specific material mentioned in class 2 C, viz., steel knuckles and couplers, rolled steel wheels, railway steel springs, carbon tool steel and similar steel in quality and character, which will analyze 0.06 and under in phosphorus and sulphur.

This clause was included only for the purpose of taking care of the specific material mentioned in this clause, and such other material as may run slightly over 0.04, such as shell steel, ship plate, scrap, etc. It never contemplated the inclusion of structural steel or any general run of good heavy melting steel scrap.

The acid furnaces have been particularly favored in the establishment of three classifications, and should be able to get sufficient material without the encouragement of this evasion.

Any contracts which either basic open-hearth or acid open-hearth plants may have outstanding for so-called unguaranteed low phosphorus scrap should immediately be revised to read strictly in accordance with the announcement. Under no circumstances may a basic open-hearth plant pay over $29 per gross ton, delivered, excepting in those cases where the chairman of this committee has issued a permit enabling them to pay a differential in freight to put them on a competitive basis. This freight differential may not be paid unless the permit has been issued, and the number thereof used, and under no circumstances may an acid or electric furnace pay over $29 for any steel other than that stipulated in the schedule.

Should our efforts to assist the mills in the regulations of this business continue to prove futile, we shall have to recommend drastic action with such mills as may have taken advantage of the reading of this clause, which is clear enough for those who wish to read it properly.

In his letter to the scrap dealers, Mr. Barnes says:

The abuse of section 2 C, which has been improperly designated by some of the trade as "unguaranteed low phos," has become so serious as to necessitate a warning to the dealers against the assorting of steel scrap for the purpose of picking out low phosphorus or special steel.

This clause was included for the purpose of permitting the shipment of steel knuckles and couplers, rolled steel wheels, railway steel springs, carbon tool steel, shell steel and similar material of a distinctly low phosphorus character, but which would fail to analyze 0.04 and under in phosphorous and sulphur.

It was never intended to encourage the assortment of steel for the purpose of picking out the better grades. There is sufficient low phosphorus scrap to take care of all of the steel foundries, without assorting heavy melting steel for this purpose; and should the dealers continue their attempt to secure a higher price for the better grade of steel scrap by making such assortment, it will be necessary for us to take drastic action in specific cases to prevent the continuance of this attempt to evade the price fixing program.

Steel scrap may be sold at only one figure, viz., $29 per gross ton, delivered, irrespective of the plant to which it is going. Special schedules have been arranged for the steel foundries, but it does not permit the foundry to pay any higher price than a basic open-hearth plant for heavy melting steel of any character.

COAL STORAGE LIMITED

Seven Blast Furnaces Out of Commission—Action of Fuel Administration

WASHINGTON, Aug. 27.—The coal situation throughout the country is growing more serious each week. But the gravest menace to the Nation's war program lies in the continued difficulty of furnishing the war industries in the East, particularly the steel industry, with sufficient coal. According to reports made to the War Industries Board, seven blast furnaces have been compelled to bank or blow out because of a lack of by-product coal. The efforts of the Fuel Administration to relieve this difficulty have so far been unavailing; but everything is being done to relieve this situation.

One of the newer items in the Fuel Administration's program by which it is hoped to ease the present situation, as well as to prepare for the threatened winter shortage, has been the announcement of a schedule of coal storage limits for industrial plants in the more vitally affected States. This is a result of the tremendous increase in the demand for coal for special war purposes in the Eastern part of the country, particularly for the Navy and transport service. This made it necessary, says the announcement of the Fuel Administration, to draw more heavily than was originally contemplated on the Eastern coal fields. The list of coal storage limits was prepared at a meeting of all the State fuel administrators, east of the Mississippi but including the States of Minnesota, North Dakota and South Dakota, held in Washington last week. United States Fuel Administrator Garfield announced the basic policy of the Fuel Administration as to storage as follows:

"Coal in excess of that required for current operation shall be delivered to plants not on the preference list of the War Industries Board only when it is not in demand for use before April 1, 1919, by consumers on said list, namely, railroads, the Federal Government, states, counties, public utilities, retail dealers or manufacturing plants on the Preference List.

"In carrying out this policy, allowance shall be made for differences in distance from the mines and for differences in transportation conditions which may require more or less storage at the beginning of winter to insure uninterrupted operation until the following spring."

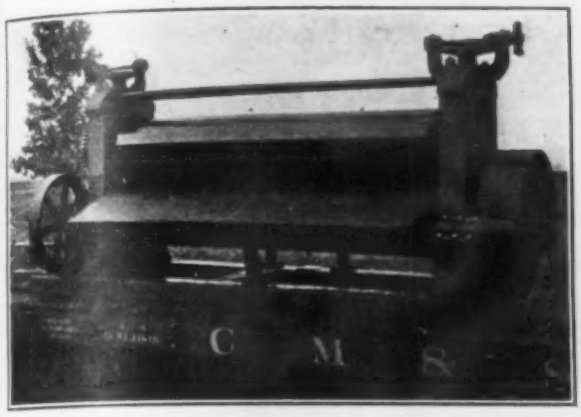
The schedule of coal storage limits was prepared on a basis of a maximum number of days for which bituminous coal could be stored, in advance, by each of the various lines of industry. Because of the great shortage in by-product and gas coal, the list forbids the storage of this coal by any non-preferred industry, limiting it exclusively to by-product and gas plants and preferred industries. On steam coal the non-preferred industries may store fuel for future requirements, but nowhere more than for 30 days. The maximum storage allowed for any plant in any portion of the country is four months, and that only in the State of Maine.

The National Association of Brass Manufacturers desires to call attention to the fact that at its meeting June 27 it was decided that its members would not supply the little union nut or tail piece that screws into the nose of the bath cock and is commonly referred to as the hose connection on which the hose for sprinkler is slipped over or attached. It is stated that many do not seem to understand that this order is in effect. It was adopted in harmony with the conservation policy of the Government, as the accessory is regarded as not necessary.

The H. Sofransky Co., Brick and Liberty streets, Allentown, Pa., scrap iron and steel, is erecting a new three-story building, about 40 x 150 ft., to cost about $60,000.

Sheet Corrugating and Curving Machines

The Streine Tool & Mfg. Co., successor to the O. O. Poorman Co., New Bremen, Ohio, has recently completed two specially constructed machines for corrugating steel shelters for the United States Army. The difficulties to be overcome in designing machines of this kind can best be described by giving the nature of the work for which they are intended. These shelters are made of No. 11 gage sheet steel and are corrugated 4 in. deep by 12¾ in. center to center. The top and bottom of the corrugations are 5¾ in. wide each and the sides are on a 15 per cent angle. After being corrugated the sheets are curved to a 5-ft. radius on a machine, also especially designed for this purpose.

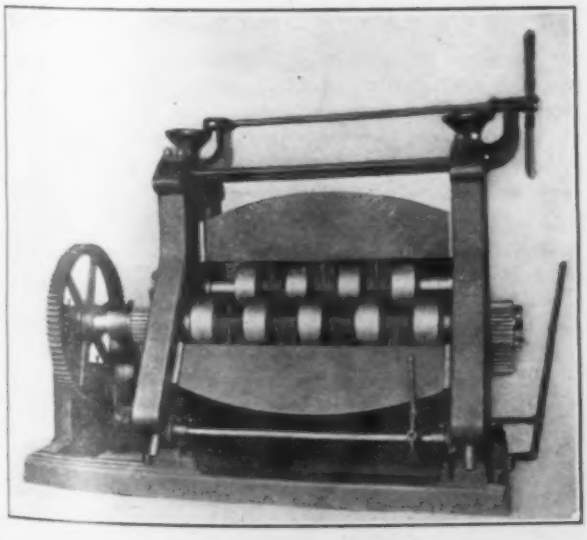


No. 11 Gage Steel Sheets for Army Shelters Have Corrugations 4-In. Deep and 12¾ In. Center to Center Formed in Them by This Machine at the Rate of Five Sheets per Minute

The corrugating machine has semi-steel hexagon shaped hollow cored rolls with cross-ribs running their entire length. The rolls are drilled and tapped for interchangeable dies which are also of semi-steel and the corrugations are machined out of the solid. The dies are attached to the rolls with studs and lock nuts and all have steel keys to insure alignment. The roll bearings are of bronze with an oil chamber in the center properly grooved. The roll end gears are of semi-steel and especially cut to allow for a maximum vertical adjustment of the top roll without adding to the back lash or clearance of the gears. An attachment for adjusting the roll for deeper or shallower corrugations is provided at the top of the housing cap, and the operator can adjust the top roll while standing on the floor. The machine is 10 ft. high, occupies a floor space of 6 x 18 ft. and weighs when assembled 85,000 lb.

The curving roll forms the sheets after they have passed through the corrugating machine. It is 7½ ft. high, occupies a floor space of 6½ x 12 ft., and weighs 10,000 lb. It is heavily compound geared and is fitted with a set of large Edgemont clutch pulleys, which permit of the quick reversal of the curving rolls.

There are four rolls in all in this machine, two being center pressure rolls and one curving roll on each side which is adjustable for any radius. The upper pressure roll is also adjustable to take care of any gage of sheet steel. All four rolls are supported by heavy box-type girders, thus preventing any possible spring of the rolls while in operation. The machine is started and reversed by one lever and hence is at all times under complete control of the operator.



After the Sheets Have Been Corrugated They Are Curved to a Radius of 5 Ft. in a Specially Designed Set of Rolls

Changes in the Ordnance Department

WASHINGTON, Aug. 27.—Important changes have been made in the Ordnance Department. Major General C. C. Williams, Chief of Ordnance, has named five special assistants who will act for him in the general supervision of the various activities of the Ordnance Department. Col. Guy. E. Tripp, who has been serving as Chief of the Production Division, has been named as one of these special assistants, and has been placed in complete charge of the administration and work of the 11 district officers having supervision over the production of ordnance material in their respective sections of the country. The Ordnance District Chief will report directly to him. Col. C. C. Jamieson succeeds Colonel Tripp as Chief of the Production Division.

The other special assistants named are: W. H. Marshall, in charge of all material excepting machine guns, rifles, pistols and their ammunitions and accessories; and excepting also chemicals, propellants and explosives; Lieut.-Col. Bascom Little, machine guns, rifles, pistols and their ammunitions and accessories; Lieut.-Col. W. C. Spruance, chemicals, propellants and explosives; and Lieut.-Col. Ralph Crews, matters pertaining to the interpretation of contracts.

It will be the function of Mr. Marshall and Lieut.-Colonels Little and Spruance to decide all engineering, manufacturing and inspection matters concerning the respective ordnance materials over which they will have supervision, keeping informed as to low points in the manufacturing programs for these articles, and directing appropriate steps by the proper division or divisions to overcome these low points.

Lieut.-Col. D. C. Seagrave, in the capacity of secretary to the Chief of Ordnance, will be in charge of the main office and correspondence requiring the attention of the Chief of Ordnance and the Executive Section. Major Charles H. Swift is named in the order as assistant to Colonel Seagrave. Lieut.-Col. James L. Walsh is placed in charge of communication by cable with Expeditionary Forces and all other confidential matters requiring the attention of the Chief of Ordnance.

Mine Workers' Demands Refused

WASHINGTON, Aug. 27.—Although they have had two increases in wages in two years and had agreed with the Fuel Administration that last fall's increase would remain effective until the end of the war, representatives of the United Mine Workers of America appeared before Fuel Administrator Garfield on Friday of last week, to demand a new increase in wages. As an excuse for their appeal, they declared that certain mine operators had paid bonuses, in violation of the Fuel Administration's regulation, and that this had caused difficulties in mines which had not paid these additions to the men's pay. Therefore, they asked the Fuel Administration to order all mines to increase wages to the equivalent fixed by the bonuses. This Dr. Garfield refused to do.

Just what the result will be is not known, for union representatives indicated that they were far from satisfied and that the miners would be restless when told of the administration's decision. No threat of a strike was made. The bonuses which are charged with having caused the trouble were ordered stopped some time ago by the Fuel Administration. Dr. Garfield now declares that he is ready to take drastic steps to see that this order is carried out. Concerning the possibility of an increase in wages for the miners, there is still the possibility that it will be reopened.

Modern Practice in Galvanizing Sheets*

Methods of Constructing and Operating Galvanizing Pots — Preparation of Material and Costs — Some Hitherto Unpublished Facts

BY CLEMENT F. POPPLETON

IT IS to be remembered that most metals are soluble in molten zinc and that there is a distinct chemical action of a corrosive nature, particularly at the metal line. Experiments have proved that forged steel and unmachined cast iron have the greatest resisting qualities, in the order named. Further, it is homogeneity more than chemical analysis that decides the resistance. Cast steel gears have been known to corrode out of all usefulness in less than 24 hr. Forged blanks with cut teeth make the best gears in spite of their greater first cost; next, machine molded cast iron with no machine work except boring. Steel castings are useless.

Materials for the Machinery

An uneven motion of the rolls, caused by back lash in the gears, increases the spelter yield and detracts from the appearance of the sheet. Forged blanks with cut teeth are recommended. Rolls must be forged steel, forged very close to size and smoothly turned. These are 8 in. in diameter by 4 ft. 4 in. long, with necks 2½ in. in diameter. Where the rolls bear on the shoes the necks are bushed up to 5 in. with forged collars made a driving fit. These collars wear very fast and usually have to be renewed weekly. Some users leave the roll neck 5 in. and turn down to 2½ in. for the gear shaft, but experience dictates that it is not worth while, as the neck wears from 5 in. to a non-usuable size in, at the outside, two weeks, and then the whole roll has to go into the lathe, whereas the collars can be kept in stock and are only a small lathe job.

The rolls have to be pickled before being put to work. This applies to the top rolls particularly. This can be done by immersion in weak acid over the week end, before the spent acid in the pickle tank is thrown away.

During use the rolls will require dressing occasionally to remove the old spelter, which is sometimes burnt into the rolls, and leaves inequalities on the roll. All such inequalities increase the spelter consumption. It is axiomatic that the smoother the roll, the less weight of spelter coating and the better the appearance of the finished sheet. To dress rolls they are allowed to cool and then smartly hammered all over with the ball peon of a machinist's hammer. This cracks the spelter particles off and leaves the steel exposed. The roll is then brushed with a strong solution of acid and is ready for work again.

Rolls can be turned twice before they are out of commission as top rolls. When their diameter reaches 7 to 7¼ in. they should be relegated to the office of bottom rolls. The life of a roll as a top roll should average four months and then two to three months as a bottom roll.

Slippers and back guides are placed between the housing and the top roll necks to protect the housing from wear. These are cast iron, unmachined, and last about one week. They fail rapidly as soon as the scale is worn through, so a goodly supply of spares should be kept on hand.

Top and bottom chocks for bottom rolls are renewable unmachined cast iron, the bottom one resting on the bottom of the housing window and the top sliding in the window and moved up and down by a screw. Two weeks is a fair life for these.

Housings in the English practice are made of steel forgings in three pieces. The front piece contains an open window for the top rolls. The back piece is roughly a triangle with two projecting legs, one horizontal which rests on the top of the pot and the other leg vertical, forming one side of the window for the bottom roll. A forged distance piece is securely riveted between the front and back pieces, forming the bottom of the window for the bottom rolls.

Guides form a cage leading the sheet from the flux box into the split of the bottom rolls, and thence to the split of the top rolls. These are rolled steel flat bars usually 2½ x ¾ in. and are five in number for a standard machine and six for a 48-in. machine. Stretcher bars for carrying the guides are usually angles having great thickness to resist corrosion. Separators are hollow cast-iron cylinders, unmachined. The tie bolts are steel forgings, 1½ in. diameter. Top stretchers are angles. The lever for adjusting pressure of the top rolls is a steel forging.

The entering flux box has a very important function to perform. It separates the live flux from the dead flux, oxide, etc., which gathers on the exposed portion of the pot, and should it leak, it is liable to spoil quite a number of sheets before the inspector finds flux stains coming through regularly, which tells him what is happening. The dipper must therefore give this his constant attention, both to detect leaks and to keep the flux fresh.

The flux box is often made of cast iron in one piece without machining. Experiments have been made with more or less success with plate and angle construction. The most durable flux box is one made out of special fire clay tiles enclosed in small angle frame. The tiles are matched with a rebate to avoid leaks and after building into the frames the whole is grouted with fire clay. These are very durable and can be readily repaired, but are expensive in first cost.

Every piece entering into the construction of a galvanizing machine should receive the greatest care, as failure of any part means a shut down for a greater or less period. This not only decreases output, but runs the temperature of the bath perhaps to a dangerous extent, and in any case sufficiently to cause an increment in the amount of dross.

The American type of machine is shown in Figs. 3 and 4. This machine is usually driven by direct-connected motor and worm gearing. Great care is exercised in the selection of all materials entering into its construction, and the workmanship is of the very highest class. The machine illustrated is manufactured by the United Engineering & Foundry Co., Pittsburgh. Rolls of 8-in. diam-

*Continued from page 436, issue of Aug. 22.

eter are best suited for galvanizing the ordinary run of sheets. The speed should be 18 r.p.m. for No. 24 gage or, say, 36 ft. per minute. This, in the machines illustrated, gives the sheet sufficient travel in the molten metal to become the same temperature as the metal. A greater speed is permissible on lighter sheets and for heavier gages the speed should be reduced. The output should be 1½ tons per hour, running on No. 24 gage, 30 in. wide.

Galvanizing Pots or Kettles

Considerable difficulty has been experienced in the successful manufacture of galvanizing pots. There are two main divisions or types of these, welded and riveted.

Of the riveted there are two types, the two-piece, made exclusively by the Millard F. Wilfong Iron Works of Philadelphia, and the three-piece plate and angle riveted pot made by several manufacturers in England and in the United States. The Wilfong company's pot consists of all four sides in one plate, which is 1¼ in. thick, butt-jointed with outside butt strap and a dished bottom plate riveted to the inside of the side plate. This plate is from ⅞ to 1 in. thick. The other type of riveted pot consists of two corner angles 6 x 6 x ⅞ in., two side sketch plates and one bent plate forming the back, front and bottom. The angles are bent at two places on about 2 ft. radius, and the bottom of the pot is curved where it meets the vertical lines of the back and front, the angles and plates being double riveted.

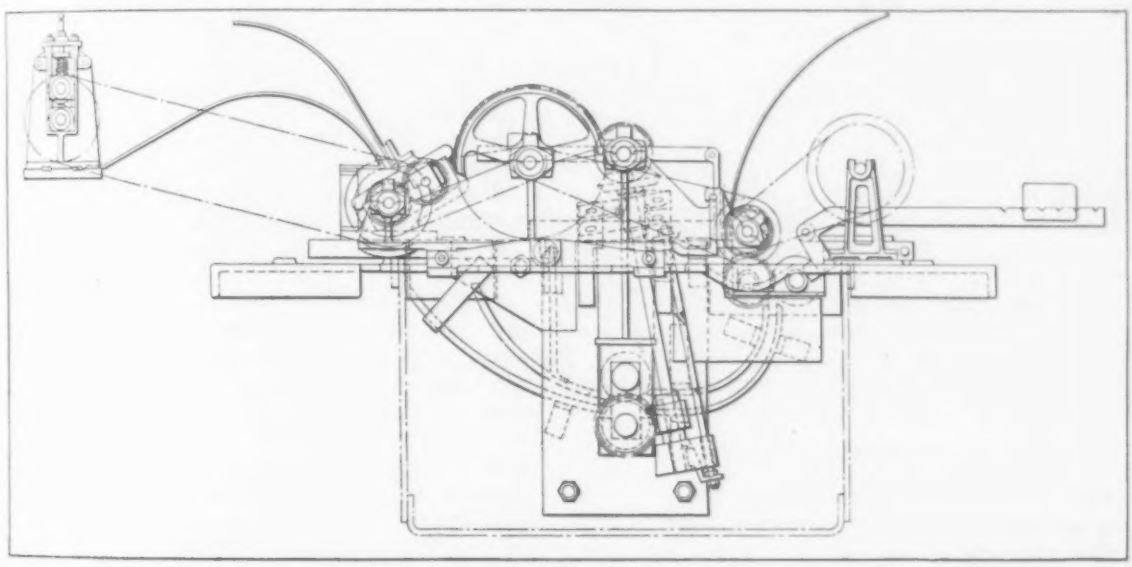


Fig. 3—American Type of Galvanizing Machine

The welded pot is practically the monopoly of J. Thompson & Co., Ltd., Wolverhampton, Eng. It is substantially the same shape as the plate and angle pot, but is welded at the corners.

The peculiar action of spelter under heat is known to every practical galvanizer. It attacks the slightest orifice in the plate, and once started works through until the plate is gone. The first sign of a leak usually appears smaller in diameter than a pea, but soon spreads as the action increases. These leaks in properly set pots usually take place about 1 ft. below the metal line. In the Wilfong pot there are only about four rivets in the worst danger zone. In the plate and angle pot there are eight edges and perhaps 16 rivets.

Now as to the danger of the leak in either case of riveted pot: The leak will commence with a trickle which can be observed, plugged, and time obtained to remove the machine and dip out the spelter into molds, thus saving a very considerable amount out of the inevitable loss. If a welded pot goes in a seam, it opens out suddenly and spreads all over the floor. In extreme cases the fires have to be withdrawn, the remainder of the spelter allowed to cool and there is the pleasant prospect of cutting the remains of the pot from the enclosed spelter with cold chisels. It is to be admitted that the welded pot does not always let go at a seam.

Of all the fuels available in the United States natural gas is the best. Coal can be used, but it is dirty, a little hard to manage and requires a stack. Oil gas has been successfully used, but is expensive today and not likely to come down in price. Coke is a very successful fuel, is almost exclusively used in England, and owing to increasing price and growing scarcity of natural gas, is practically certain to become the standard fuel in the United States.

The setting of a pot for coke firing is a very simple matter, but also very important. The first step is to make up a permanent foundation, preferably of concrete. This should be large enough in area for the pot itself and the furnaces and project at least 12 in. beyond the line of the furnaces all around. The depth of this concrete block will depend naturally on the nature of the soil. The weights to be supported are:

Pot, 5 to 6 tons, say	6
Spelter, 16 to 18 tons, say	18
Machinery, 5 to 6 tons, say	6
Total, tons	30

The bottom of the pot should be on floor line and top of the concrete slab should be 4½ in. below the floor. The foundation is finished off with a course of second quality firebrick, laid on edge and thoroughly grouted with fire clay mixed to the consistency of thin cream.

The pot is then set by crane, or hand, directly in the center of the foundation and in line with the building columns. It is important that the top edges of the pot are level and square with the building. Steel wedges under the bottom are used to bring the top edges level, then fire clay is packed in to keep air or hot gases from getting under the pot.

If the pot is not level the roll of the galvanizing machine, which merely rests on the top edge of the pot, will be inclined and will not deliver the sheet truly, thus causing many cobbles. A cobble in a

galvanizing machine is practically always an absolute waster and in addition carries an abnormally heavy spelter coating. For similar reasons if the pot is set out of square the sheets will be a long way out of their proper position at the end of the long cooling conveyor.

The furnace is now built around the pot. This consists of four chambers of 9-in. brick work. The fire is not allowed to impinge on the corners of the pot. This is vitally important with a welded or plate and angle pot, but is not so important in the Wilfong type. Under no circumstances is it permissible to heat the bottom of the pot. It will be remembered that the bottom of the pot is covered with a layer of lead and if this is heated it forces the dross into the working level and spoils the sheets.

The fire chamber is about 12 in. deep. By the length of the sides and back and front of the pot it is built up to within 9 or 12 in. of the top of the pot, where it is enclosed with cast-iron cover plates. A series of draft holes, 4½ x 2½ in., are left at intervals in the outer walls and ash holes 9 x 5 in. in the two bottom courses.

It is wise to have many draft holes and to change them from time to time by closing some with a loose brick and opening others in the same course. This prevents continuous local heating of the pot, which is likely to occur, particularly if drafts impinge on one side of the furnace. The draft is regulated in the same manner and the ash holes should be kept partly closed except at such times as fires are being cleaned. The object aimed at in firing galvanizing pots is slow, perfect combustion of the fuel.

The cover plates are provided with hand holes and loose covers. The coke is fed through these holes and they also serve to increase the draft when the fires are being started and also to admit the passage of the fumes to the fume hood.

Starting Up a Pot

The procedure in starting up a pot is as follows: Take the spelter in cakes as it comes from the spelter works. Place a layer about two cakes thick over the bottom and sides of the pot. Next place a layer of scrap timber about 2 ft. thick on top of the cakes in the bottom. This layer of timber will serve to hold the side cakes of spelter in place. Sprinkle this timber with oil to facilitate ignition at the right time. On top of the timber place another layer of spelter cakes about two thick. Next light the furnaces and let them come up to heat slowly until the sides of the pot are about 300 deg. Fahr.; then light the timber inside of the pot.

It is better to start a pot at the week end shut down. Then there is a supply of molten spelter available from an adjacent pot. As soon as the spelter begins to trickle add molten spelter if available, a cake of cold to the molten equivalent of two cakes and repeat this until there is a depth of about 2 ft. of molten spelter in the bottom of the new pot. At this stage it will take care of itself and only needs the adding of cold spelter slowly until the metal line is reached.

Having molten spelter available relieves the new pot from very serious strains owing to unequal heating, and this adds materially to the life of a pot. Extreme cases have been known where these strains were so severe that a new pot has leaked and become useless before a single sheet could be galvanized. In case no molten spelter is available the procedure is to add cold spelter, timber and spelter pushed on top of it and to slide cakes of spelter down all sides of the pot, care being taken to feed slowly so as not to freeze the partly molten spelter in the bottom of the pot. Starting a pot is a slow process, about 24 hr. being the extreme limit of speed and safety, and it is really safer to consider 36 hr. as the allotted time.

In taking molten spelter from an adjoining pot it is well to bear in mind that the make-up spelter in the working pot should not be replaced too rapidly; it would undo the good work to strain the old pot to save straining the new. When the new pot has reached the approximate metal line it should be skimmed clear of charcoal and zinc ashes and covered with spent flux.

The galvanizing machine, previously overhauled and rolls pickled, should then be swung into place over the pot, resting on bars or old rails, and allowed to remain in that position for 12 or more hours. The machine will be practically at the same temperature as the metal in the pot, or at least so close to it that when lowered in very slowly it will not freeze the metal. The rolls of the machine should be put into slow motion as soon as possible after they are immersed in the pot.

Working the Pot

A good general rule for spelter and flux is "little and often." Add the spelter about two cakes at a time. This will decrease the strain on the pot, save fuel, and give better and more uniform spelter yield. Spelter can be stored on the pot cover plates and become heated before being dropped into the pot. Add flux a little at a time. This conserves muriate and keeps the flux fresh longer.

Leaks present one of the greatest problems to the galvanizing superintendent and call for the exercise of great judgment and foresight. In dipping out a pot, running the spelter into molds, and remelting, there will be a minimum loss of about 1 ton on a 16-ton pot. It goes into oxide, splash, not recovered and fumes. It would seem, therefore, that on account of increased output from the pot, and the saving of the inevitable loss as long as possible, the correct thing is to run if by any means possible; herein lies the risk. It costs time (usually overtime) and money to attempt to patch a pot and still keep running. If it succeeds for a day or two it may pay. The writer has run a month with a patched pot; on the other hand, a leak means a dead pot sooner or later, and it may be that when the leak is apparently well in hand one discovers with chagrin that the efforts to patch have only resulted in injuring the already weakened plates and a run out instead of a leak is the result.

Methods of Stopping a Leak

The leak usually demonstrates its presence by the appearance of spelter in the ash holes. The first thing to do is to tear down the furnace wall immediately above the hole in which the spelter appears, at the same time drawing the fire on that side of the pot. The exact position of the leak will disclose itself, usually by a mere trickle of spelter (in fact, if it is more than a mere trickling the case is hopeless and it is all hands to drossing and then dip out). The next thing is to prepare to stop the leak. Although the leak is a mere trickle it is almost a certainty that the corroded spot on the inside of the plate will vary from the size of the palm of a man's hand to a foot square. A short plug of soft steel must be prepared, tapered from ⅛ in. diameter at the point to about 1 in. in 2-in. length. This is driven hard into the leak. This will usually demonstrate whether it is pos-

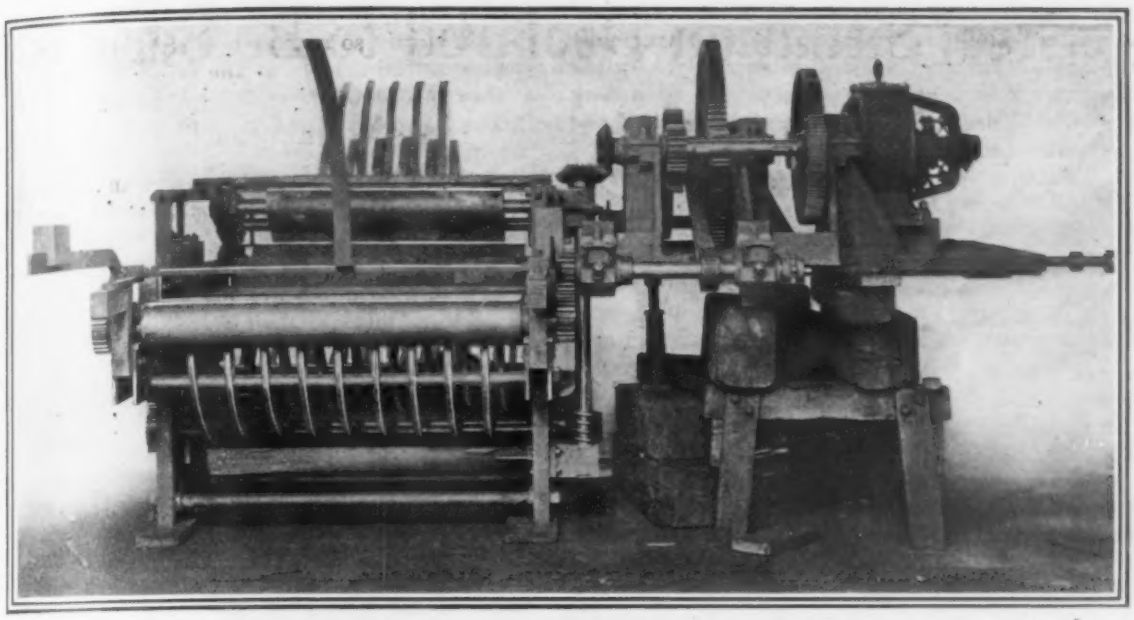


Fig. 4—Galvanizing Machine Assembled As It Is to Be Let Into Galvanizing Pot

sible to go on working or not. If the plate is thick enough for an inch around the hole there is hope. If it is not, then the plug goes through and it is a case of an emergency patch, the hose and dip out.

If the plug holds then a plastic patch, previously prepared, is applied. The plastic patch may be made in two ways. First and preferable: Silicate of soda (water glass), fire clay and iron borings. Mix the borings and fire clay in equal proportions by volume thoroughly dry, add the soda and mix with water until the mass will just knead by hand. Plaster this thickly over the plug and around it for about a foot square. Put a square of about $\frac{3}{8}$-in. plate over this and take a bar about $1\frac{3}{4}$ in. sq. (a $1\frac{3}{4}$ x $1\frac{3}{4}$-in. billet serves admirably), wedge the plate tight by placing the one end of the bar in the center of the plate and the other end at an angle of about 45 deg. on the foundation; wedge the bottom end tightly; then build about a 13-in. pier around the patch extending from the floor line to the pot cover plate and rebuild the remains of the furnace. Light the fires and proceed to dip sheets. This patch may last a day or a week or even longer.

The operations described must be performed with great rapidity and constitute a very hot job. It may be necessary to freeze the spelter in the pot around the leak after the plug is driven. This is accomplished by spraying with a hose.

Plastic patch No. 2 is made as follows: Iron borings and fire clay, equal proportions; sulphuric acid and water, equal parts; mix together until stiff enough to adhere to the pot plate. Plaster on thickly with a trowel and proceed as in the previous case.

The above deals with a leak in the plate on either side or ends of the pot. If the pot is plate and angle or welded construction and the leak is in the seam, it hardly ever pays to attempt to patch. It is wiser to dross and dip out at once.

New Construction by the Government

WASHINGTON, Aug. 27.—Eight chemical manufacturing plants, built for the Bureau of Aircraft Production, estimated to cost $7,000,000, are now nearing completion. They will produce the necessary ingredients used in the manufacture of "dope" for coating airplane surfaces, immense quantities of which are used monthly, last month's supply alone running into 200,000 gallons.

The War Department announces that two additional warehouses are to be added to the Columbus, Ohio, Quartermaster Interior Storage Depot. To complete the construction of the new balloon school at Lee Hall, Va., the allotment of $203,000 has been approved by the Assistant Secretary of War. The completed plans for the new school include about 60 buildings, among them a balloon shed, aero repair shop, garage, fire house, photo laboratory, as well as mess halls, barracks and school buildings.

The Assistant Secretary of War has also approved an allotment of $103,850 for improving and extending Bolling Field, Anacostia, D. C. Besides enlarging the flying field, an additional hangar will be erected and quarters provided for 23 officers and 154 enlisted men. An aero repair shop and a machine shop will be erected and the whole field encircled by a high barbed wire fence.

Another War Department order authorizes the Construction Division to make additions to the Schenectady Quartermaster interior storage at Schenectady, N. Y., at a cost of $1,498,500.

The Conservation and Reclamation Division has been authorized to erect clothing and hat repair shops and dry cleaning plants in 34 cantonment camps and depots throughout the country and to install the necessary machinery for this work.

Large Ferromanganese Imports in June

Imports of ferromanganese in June were 5739 gross tons, or the largest for any month this year. They compare with 4138 tons in May, the largest up to that time. For the fiscal year ended June 30, 1918, the imports were 33,259 tons, as compared with 73,741 tons for the fiscal year 1917. The June imports this year came in as follows: Through Baltimore, 3344 tons; through New Orleans, 1286 tons, and through Philadelphia, 1109 tons.

Exports in June were 345 tons, making the total for the fiscal year 4935 tons, or over 10 per cent of the imports.

The E. H. Mumford Co., Elizabeth, N. J., has changed its name to the Dayton Molding Machine Co. It will have its plant and office headquarters at Dayton, Ohio, and the personnel of the company will remain the same.

Steel Situation Declared to Be Serious

Conditions Fully Reviewed at Washington Meeting and Plans for Relief Decided Upon—Chairman Baruch Says Steel Is Neck of Bottle

WASHINGTON, Aug. 27.—Vigorous and immediate retrenchment must be made in every line of steel consumption or there is grave danger that the growing shortage of steel will cause a vital interference with the war program of the United States. Efforts to meet the existing shortage have so far not proved completely successful. To make matters worse, our overseas demands for steel are growing daily and new and unlooked for calls are being made upon our stocks.

Because of the seriousness of the situation, J. L. Replogle, director of the steel division of the War Industries Board, called a special conference of the members of the War Service Committee of the American Iron and Steel Institute to meet the members of the War Industries Board and other Government representatives in Washington last Thursday. It was one of the most important meetings of the industry since the war began, and no effort was made at the session, either by the representatives of the Government or of the industry to minimize the seriousness of the outlook.

Bernard M. Baruch, chairman of the War Industries Board, presided, and laid before the conferees a series of reports on the effect of the steel shortage on our growing war program. Harry A. Garfield represented the fuel administration, Carl Gray represented the railroad administration, and Felix Frankfurter, chairman of the War Labor Policies Board, represented the Department of Labor. All promised the co-operation of their branches of the Government.

Among the representatives of the American Iron and Steel Institute were James A. Farrell, H. L. Hughes, J. B. Bonner, H. J. Watt, W. H. Clingerman, A. C. Dinkey, John A. Topping, J. A. Campbell, and E. G. Grace.

Railroads Largest Consumers

A review of the Government's steel requirements showed that the railroads are the largest consumers of steel, and that their demands must be met promptly. Second is the need of the shipbuilding program which is also rapidly increasing. Third comes the War Department, whose demands are increased daily because of the new needs of our growing army in France and on other fronts as well as by the similar increase of the demands of the Allied Governments for their various expeditions. Fourth is the Navy Department.

It was agreed that there must be no curtailment of any of these programs but a strict revision has been ordered of all requirements. Every sacrifice must be made here at home to meet the calls of General Pershing and the other war demands without the slightest delay. To accomplish this, the conference decided that there must be:

First—Greater conversion of mills to the production of steel that is required in the war program.

Second—An increase in the coal supply, particularly by-product coal, available for mills engaged on Government work.

Third—Shutting off further steel shipments to industries other than those engaged in meeting war needs.

Fourth—More rigorous conservation in the handling of steel in the mills.

"The steel men in the meeting," says the official announcement of the War Industries Board, "promised to co-operate to their utmost in meeting the Government's steel requirements and virtually pledged themselves to so increase their output as to guarantee the needs of the war program."

Conditions Very Serious

The meeting was not public, and most of the details are such that neither the Government representatives nor the steel men looked upon them as matters that ought to be published. None of them, however, tried to conceal the fact that the situation has become a serious one, and that the retrenchments which must now be made are far more vital than those heretofore worked out. Pig iron must be conserved almost entirely for war needs; gray iron is no longer available for any purpose except strict war requirements and the priorities division has refused to issue further allocations even for essential work, unless it has a direct Government order behind it. Pig iron will be saved first for projectile steel and other war munitions requirements, for the railroads and the shipbuilding program. Sheet steel, tinplate and wire mills must get along with deep cuts in their allotments. They probably will be cut down 50 per cent. In every line there must be greater economy, both in the original manufacture and in the subsequent handling.

Each iron and steel using industry, in turn, will be called to Washington to receive not only a first hand warning of economy but an ironclad specification of restrictions. Already the automobile manufacturers have been warned to get out of the passenger car business before the end of the year, and they have been put on short rations in the meantime. Rules have been laid down for conservation by the motorcycle, bicycle, horse-drawn vehicles, and refrigerator lines. The stove manufacturers of the country have had two sessions with the steel division and the Priorities Commission. They have been warned to make deep cuts into their uses of steel and iron, and they too will presently receive a definite program of limitations.

Steel Situation Vital

"Steel is the neck of the bottle," said Chairman Baruch in discussing the situation which the War Industries Board must meet. "We are up against shortage in every line, but the steel situation is in many ways the most vital one, for on it depends first of all our war program. The steel shortage, however, is largely the result of the coal shortage, and we are promised every co-operation by the Fuel Administration to get the coal necessary to reopen the furnaces which have been compelled to shut down because of the shortage of by-product coal. The labor problem is also acute, and everything is being done to meet it. But the country must begin to realize that great sacrifices must be made if we are to maintain the big war program which we have mapped out, and sacrifices must be made everywhere."

Restrictions in the manufacture of electrical apparatus and supplies were announced by the War Industries Board after the War Service Committee of Electrical Jobbers had presented their claims for preferred treatment for that industry to the Priorities Commission. As a result of the hearing, the Priorities Commissioner announced that manufacturers of elec-

trical apparatus and supplies will be accorded a degree of preference for their materials to enable them to operate, conditioned upon their pledging themselves to limit their output to essential products and undertake to see that such products are devoted solely to essential uses as that term may be defined from time to time by the Priorities Division. The manufacturers must be relied upon to police their own industry and also in a measure to police jobbers, distributers and retail dealers. The commissioner also declared that jobbers should be permitted to maintain reasonable stocks from which Government agencies, war industries and the civilian population may draw for their necessary essential requirements; provided the jobbers will pledge themselves to rigidly restrict the use of all stocks to solely essential uses and to reduce to an absolute minimum both jobbing and retail stocks. The jobbers will be relied upon to police their own industry and that of the retailers. Any jobber or retailer violating the pledge will be cut off from procuring further supplies.

Economies in the manufacture of motorcycles were promised by representatives of that industry at a meeting with the conservation division of the War Industries Board. Technical experts are to be put to work at once, under the supervision of a war service committee, particularly to effect economies in the use of steel, copper tubing, brass tubing, tin plate and rubber. They will also study the possibilities of the use of substitutes for these articles. After the committee has made its report to the conservation division, the latter will issue a statement on the restrictions to be put upon the industry. The representatives at the meeting were: T. C. Butler, Jr., C. B. Franklin and F. J. Weschler, of Springfield, Mass.; F. B. Rodgers, Arthur Davidson, W. S. Harley and August Frey, Milwaukee; A. G. Hale and F. J. Stareck, Cleveland.

May Build Locomotive Plant at St. Louis

ST. LOUIS, Aug. 27.—A permit for the construction of a large locomotive plant at St. Louis has been issued to the American Locomotive Co., New York, by the War Industries Board according to unconfirmed advices received by the Chamber of Commerce of St. Louis. Announcement to this effect was made by Paul V. Bunn, executive secretary of the chamber, on Aug. 24.

Mr. Bunn said: "The Chamber of Commerce has been conducting negotiations, which have reached a very encouraging state, looking toward the establishment of a $13,000,000 plant employing several thousand mechanics within the St. Louis industrial district on the part of the American Locomotive Co.

"Presentations as to the housing conditions, fuel, transportation and other factors have been made in considerable detail to the president of the company. The situation has reached the point where, according to our information, the War Industries Board has issued a permit for the construction of the plant. This information is at present unconfirmed, but in conjunction with the negotiations that have taken place, it is considered most encouraging."

It is reported that the proposed plant would require a tract of land of between 200 and 300 acres, that it would have a capacity of 40 locomotives a week, and would employ in the vicinity of 3000 skilled workmen and an equal number of common laborers. It has not been decided in the event that the plant is located in the St. Louis district whether to build it on the east or west side of the Mississippi River. While better housing conditions exist on the West side or in St. Louis proper, the East side would present better switching facilities, for it is understood the locomotive company has under consideration a plan for obtaining steel castings from the Commonwealth Steel Co. at Granite City.

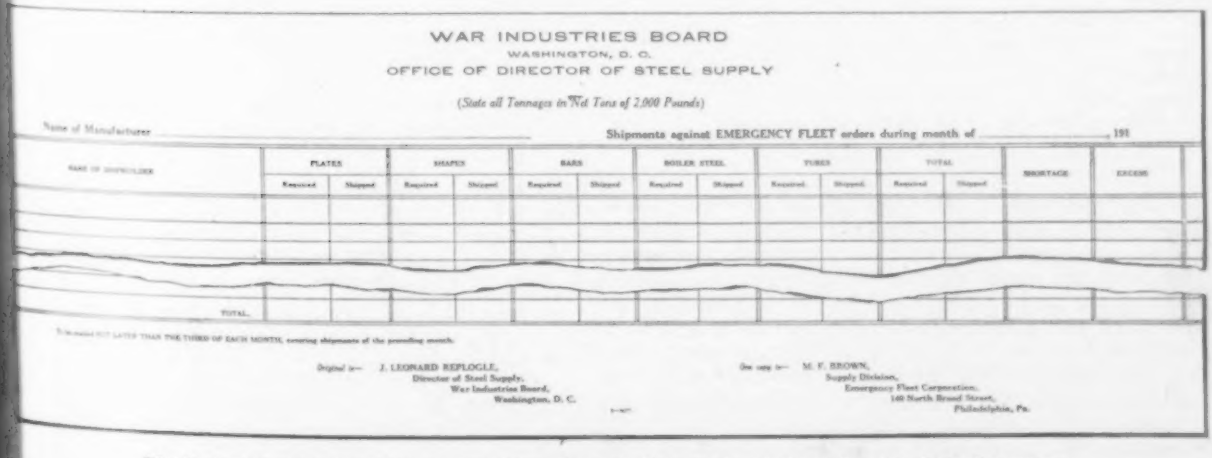
Clarence H. Howard, president of the Commonwealth Steel Co., has been prominent in the negotiations for bringing the plant to St. Louis. He has been assisted by Edgar Gengenbach, industrial commissioner of the St. Louis Chamber of Commerce.

An official of the American Locomotive Co. in New York admitted the possibility of a plant being built at St. Louis, saying that final decision was to come from the Government. This official gave it as his opinion, however, that the project would be abandoned. The Government has been urged to supply more labor for existing American plants rather than build a new one.

STEEL SUPPLY FOR SHIPS

Manufacturers' Monthly Reports on Emergency Fleet Corporation Orders

For the purpose of checking closely the shipments of plates and other forms of steel from mills to shipyards, the Director of Steel Supply at Washington has prepared a new blank of which the various classifications are shown in the accompanying cut. The requirements of steel of the various forms for each month, as determined by the Emergency Fleet Corporation, and sanctioned by the Director of Steel Supply, are shown in one column, and against these the amounts actually shipped. The object of the new form of report is to check up, and thus remedy the inequalities that have existed thus far in the service given the shipyards by the steel mills. In some cases the yards have large stocks on hand and large amounts on the way from mills and fabricating plants, while in other cases the reservoir of steel became so small as to compel a stoppage of shipbuilding.



WAR INDUSTRIES BOARD
WASHINGTON, D. C.
OFFICE OF DIRECTOR OF STEEL SUPPLY

(State all Tonnages in Net Tons of 2,000 Pounds)

Name of Manufacturer _____ Shipments against EMERGENCY FLEET orders during month of _____, 191

NAME OF SHIPBUILDER	PLATES		SHAPES		BARS		BOILER STEEL		TUBES		TOTAL		SHORTAGE	EXCESS
	Required	Shipped	Required	Shipped	Required	Shipped	Required	Shipped	Required	Shipped	Required	Shipped		
TOTAL														

Original to— J. LEONARD REPLOGLE, Director of Steel Supply, War Industries Board, Washington, D. C.

One copy to— M. F. BROWN, Supply Division, Emergency Fleet Corporation, 140 North Broad Street, Philadelphia, Pa.

Blank for Monthly Reports of Requirements and Shipments of Steel for the Ship Program

Metal Manufacturers' Meetings in Milwaukee

Tentative Programs of Gray Iron and Malleable Foundry, Iron and Steel and Non-Ferrous Sessions—List of Exhibitors

AT Milwaukee, during the week of Oct. 7, when simultaneous meetings will be held by the American Foundrymen's Association, the iron and steel section of the American Institute of Mining Engineers, the Institute of Metals division of the American Institute of Mining Engineers, and the American Malleable Castings Association, an exhibition of labor saving metal working equipment that promises to be the largest show of its kind ever held in this country will be conducted. Already 165 manufacturers have decided to make displays and only a comparatively small amount of space is still available, according to A. O. Backert, secretary-treasurer of the American Foundrymen's Association.

The manufacturers of Milwaukee have organized committees on arrangements for the entertainment and reception of the visitors who, it is expected, will number from 3500 to 4000. The program, although not definitely outlined, will include a reception and dance at the Milwaukee Auditorium, a theater party and a boat ride. Plant visitation probably will be confined to Thursday and Friday, and notable works in the Milwaukee district will be open for inspection. On Thursday evening, Oct. 10, a banquet will be held and addresses will be delivered by speakers of international note. The Milwaukee committees on arrangements include:

General Committee: Theodore O. Vilter, chairman, president Vilter Mfg. Co.; W. J. Fairbairn, secretary, Milwaukee Metal Trades and Founders' Association; A. Harrison, superintendent foundry and pattern shop, Allis-Chalmers Mfg. Co.; E. Bearman, Illinois Steel Co.; John D. Bird, general manager Power & Mining Machinery Co., Cudahy, Wis.; James Marshall, general manager Geo. H. Smith Steel Castings Co.; W. G. Bruce, secretary Milwaukee Association of Commerce.

Finance Committee: Theodore O. Vilter, chairman; W. G. Bruce; C. R. Messinger, Chain Belt Co.; J. D. Bird; T. A. Glasscott, Pickands, Brown & Co.; John Thomas, Thomas Furnace Co.; A. J. Lindeman, Lindeman & Hoverson Co.; Otto H. Falk, Allis-Chalmers Mfg. Co.

Entertainment Committee: J. J. McDevitt, S. Obermayer Co.; John Mertes, Federal Foundry Supply Co.; C. E. Lemmon, chemist; T. A. Glasscott; James Marshall, and J. S. Pinson, Avery Co.

Golf Committee: J. D. Bird, chairman; C. R. Messinger; David McLain, McLain's System; F. E. Layman, chemist and C. G. Ocock, Avery Co.

Reception Committee: E. Bearman, chairman; Frank Cleveland, Milwaukee Association of Commerce; David McLain; J. D. Shaw, Shaw Foundry Co.; E. A. Worcester, Falk Co.; J. A. McDevitt; Henry R. Donald, Essley Machinery Co.; T. A. Glasscott; W. J. Fairbairn, and Henry Wehr, Wehr Steel Castings Co.

Plant Visitation Committee: A. Harrison, chairman; James Marshall; H. R. Donald; Wells K. Gregg and H. G. Siefert.

The meetings of the Allied Metal Trades Association will be opened on Tuesday morning, Oct. 8, at which addresses are scheduled relating to the importance of the metal working industry in the prosecution of the war. Upon adjournment, the opening sessions of the different associations will be called to order in separate halls in the Milwaukee Auditorium.

The exhibition will be opened formally on Monday afternoon, Oct. 7. Beginning Tuesday, Oct. 8, the American Foundrymen's Association will hold daily meetings in the morning only, and on several days simultaneous sessions will be necessary to dispose of the lengthy program in time for adjournment Friday noon, Oct. 11. The Institute of Metals division of the American Institute of Mining Engineers will have one meeting on Tuesday, two on Wednesday, and one on Thursday. The iron and steel section of the American Institute of Mining Engineers will hold three meetings and will adjourn Wednesday afternoon. Only one meeting is scheduled by the American Malleable Castings Association.

One of the notable features of the meetings will be motion picture displays of the use and manufacture of hand grenades; the civil re-establishment of wounded and crippled Canadian soldiers; the manufacture and launching of ships at the Hog Island yard, Philadelphia; the building of concrete ships; the manufacture of steel by the triplex process, and the cause and prevention of industrial accidents.

A tentative program of the topics that will be discussed follows:

General Foundry Papers

"Sand-Blasting Equipment," by C. T. Bird, Pangborn Corporation, Hagerstown, Md.

"Engineers—Their Relation to the Foundry in the Saving of Labor," by E. S. Carman, Cleveland Osborn Mfg. Co., Cleveland.

"Pouring Devices," by Mark P. Ohlsen, Brillion Iron Works, Brillion, Wis.

"Effective Means of Improving the Quality of Sand Mixtures," by H. B. Hanley, New London Ship & Engine Co., Groton, Conn.

"Common Troubles in Cupola Practice Which Tend to Cut Down Production," by G. S. Fisher, Whiting Foundry Equipment Co., Harvey, Ill.

"Women in Foundries," by C. E. Knoeppel, C. E. Knoeppel & Co., New York.

"Organizing a Foundry for Tractor Production," by Paul M. Ramp, Moline, Ill.

"Coke Problems of the Foundryman," by J. A. Galligan, Pickands, Brown & Co., Chicago.

"Recent Developments in Burning Oil in Cupolas," by John Howe Hall, Taylor-Wharton Iron & Steel Co., High Bridge, N. J.

"Continuous Operation of a Two-Story Foundry," by J. F. Ervin, Michigan Motor Castings Co., Flint, Mich.

"Sale and Distribution of Foundry Pig Iron in War Times," by C. J. Stark, editor *Iron Trade Review*, Cleveland.

"Concrete Foundry Floors," by George Moyer, Textile Machine Works, Reading, Pa.

"Training Your Own Help Instead of Competing with Other Manufacturers," by Ernest Van Billiard and T. Hough, Jr., General Railway Signal Co., Rochester, N. Y.

"Blowers," by J. Trinks, Pittsburgh.

"Precipitation of Dust in Foundries," by H. D. Egbert, Research Corporation, New York.

"Pyrometers and Their Application to Core Ovens," by J. P. Goheen, Brown Instrument Co., Philadelphia.

"Cast Iron in Service Projectiles and Trench Warfare," by Major Edgar Allen Custer, Ordnance Department, Pittsburgh.

Moving picture film on the "Manufacture and Use of Hand Grenades," by Major Frank B. Gilbreth, Providence, R. I.

"A Rapid Method for the Determination of Graphitic Carbon," by Frank H. Kingdon, metallurgist, Sullivan Machinery Co., Claremont, N. J.

"Cores in the Foundry," by Walter F. Prince, Elizabeth, N. J.

Accident Prevention Conference

"The Cause and Prevention of Industrial Accidents," to be shown by moving pictures and illustrating accidents as reported to the Industrial Commission of Ohio.

"Accident Prevention Is Good Business," by Hon. Fred M. Wilcox, vice-president Wisconsin Industrial Commission.

"What the State Can Do to Prevent Accidents," by Hon. Thomas J. Duffy, chairman Industrial Commission of Ohio.

"What the Buckeye Steel Castings Co. Has Accomplished in Accident Prevention," by Fred G. Bennett, safety director Buckeye Steel Castings Co., Columbus, Ohio.

"The Importance of Organization in Accident Prevention," by C. W. Price, field secretary National Safety Council, Chicago.

"The Vital Necessity of Conserving Man Power During

the War," by Victor T. Noonan, safety director Industrial Commission of Ohio, Columbus, Ohio.

"What Shall Be Done With the Crippled Soldier," by W. A. Janssen, vice-president Canadian Steel Foundries, Montreal, Canada.

Steel Foundry Practice

"Ordnance Steel for the Army and Navy," by John Howe Hall, Taylor-Wharton Iron & Steel Co., High Bridge, N. J.

"Operating an Electric Furnace for the Production of Ordnance Castings," by W. E. Moore, Union Bank Building, Pittsburgh.

"Steel Foundry Practice in the Far West," by J. D. Fenstermacher, Columbia Steel Co., San Francisco.

"Acid Versus Basic Lining for Electric Furnaces," by F. J. Ryan, Electric Furnace Construction Co., Philadelphia.

An interesting report on the heat treatment of steels Nos. 2 and 3, specified by the Ordnance Department also will be submitted. This will be followed by a topical discussion of the manufacture of steel for ordnance purposes by foundrymen who have had a wide experience in this work.

Malleable Iron Foundry Practice

"Some Features of Malleable Iron Practice," by J. G. Garrard, Northwestern Malleable Iron Co., Milwaukee.

"Soundness," by Enrique Touceda, Albany, N. Y.

"Annealing Malleable Iron," by H. E. Diller, General Electric Co., Erie, Pa.

"Use of Malleable Castings," by H. A. Schwartz, National Malleable Castings Co., Indianapolis.

"White Rim or Picture Frame Fractures," by J. B. Deisher, T. H. Symington Co., Rochester, N. Y.

"Advantages of Malleable Iron Versus Steel for Agricultural Castings," by W. A. Forbes, Rockford Malleable Iron Co., Rockford, Ill.

"The Symington Core Department," by Donald S. Barrows, T. H. Symington Co., Rochester, N. Y.

Non-Ferrous Meetings

The program of the Institute of Metals division of the American Institute of Mining Engineers includes a discussion of the conservation of tin, and representatives of various industries using tin in manufacture will contribute to this symposium.

Tuesday Morning, Oct. 8

"The Metallography of Tungsten," by Zay Jeffries.

"The Constitution of the Tin Bronzes," by S. L. Hoyt.

"Notes on Babbitt and Babbitted Bearings," by Jesse L. Jones.

"Oxygen and Sulphur in the Melting of Copper Cathodes," by S. Skowronski.

"The Relation of Sulphur to the Overpoling of Copper," by S. Skowronski, with discussion by Philip L. Gill.

Wednesday Morning, Oct. 9

Symposium on "The Conservation of Tin." This topic will be discussed by the following: G. W. Thompson, National Lead Co.; G. H. Clamer, Ajax Metal Co., Philadephia; C. M. Waring, Pennsylvania Railroad Co.; M. L. Lissberger, Mark Lissberger & Son, Inc., Long Island City, N. Y.; D. M. Buck, American Sheet & Tin Plate Co., Pittsburgh; W. M. Corse, Buffalo; G. K. Burgess and Mr. Woodward, United States Bureau of Standards, Washington, D. C.; M. L. Dizer, War Industries Board, Washington, D. C.; a representative of the Niles, Bement, Pond Co., New York; a representative of the bureau of steam engineering, United States Navy, Washington, D. C.

Wednesday Afternoon, Oct. 9

"The Volatility of the Constituents of Brass," by John Johnston.

"Notes on the Metallography of Aluminum," by P. D. Merica and J. R. Freeman, Jr.

"The Effect of Impurities on the Hardness of Cast Zinc or Spelter," by G. C. Stone.

"Dental Alloys," by Dr. Arthur W. Gray.

"Electrolytic Zinc," by C. A. Hansen.

"The Condensation of Zinc From Its Vapor," by C. H. Fulton.

Thursday Morning, Oct. 10

"Notes on Non-Metallic Inclusions in Bronzes and Brasses," by G. F. Comstock.

"Nichrome Castings," by Arlington Bengal.

"Fusible Plug Manufacture," by G. K. Burgess and L. J. Gurevich.

"Application of the Spectroscope to the Chemical Determination of Lead in Copper," by Messrs. Hill and Lucke.

"Radium," by Richard B. Moore.

Iron and Steel Sections

The first session of the iron and steel section of the American Institute of Mining Engineers will be devoted to the consideration of papers on iron and steel topics. This will include the consideration of iron ores, ferroalloys, silica brick and the manufacture of steel. Another meeting will consider coal and coke. The program tentatively outlined follows:

Tuesday Morning, Oct. 8

"The Limonite Deposits of Mayaguez Mesa, Porto Rico," by C. R. Fettke and Bela Hubbard.

"The Manufacture of Ferroalloys in the Electric Furnace," by R. M. Keeney.

"The Manufacture of Silica Brick," by H. Le Chatelier and B. Bogitch.

"Notes on Some Iron Ore Resources of the World."

"Recent Geologic Developments on the Mesabi Iron Range," discussion by Anson A. Betts and J. F. Wolff.

"A Volute Aging Break," by Henry M. Howe.

Moving pictures of the triplex steel process.

Wednesday Morning, Oct. 9

"The By-Product Coke Oven and Its Products," by W. H. Blauvelt.

"The Use of Coal in Pulverized Form," by H. R. Collins.

"Carbocoal," by C. T. Malcolmson.

"Low-Tempered Distillation of Illinois and Indiana Coals," by G. W. Traer.

"Price Fixing of Bituminous Coal by the United States Fuel Administration," by R. V. Norris and others.

MISCELLANEOUS SUBJECTS

Wednesday Afternoon, Oct. 9

Moving pictures showing the construction of concrete ships.

Moving pictures showing the civil re-establishment of crippled soldiers in Canada.

The Exhibitions

Exhibits will be made by the following manufacturers:

Abell-Howe Co., Chicago.
Abrasive Co., Philadelphia.
Allis-Chalmers Mfg. Co., Milwaukee.
American Gum Products Co., New York.
American Foundry Equipment Co., Cleveland.
American Kron Scale Co., New York.
E. C. Atkins & Co., Indianapolis.
Arcade Mfg. Co., Freeport, Ill.
Asbury Graphite Mills, Asbury, N. J.
Austin Co., Cleveland.
Ayer & Lord Tie Co., Chicago.
Badger-Packard Machinery Co., Milwaukee.
Barrett Co., Chicago.
Beaudry & Co., Boston.
Berkshire Mfg. Co., Cleveland.
S. Birkenstein & Sons, Chicago.
G. S. Blodgett Co., Burlington, Vt.
Blystone Mfg. Co., Cambridge Springs, Pa.
Brass World Publishing Co., New York.
Bristol Machine Tool Co., Bristol, Conn.
Brown Specialty Machinery Co., Chicago.
Buckeye Products Co., Cincinnati.
Bullard Machine Tool Co., Bridgeport, Conn.
Carborundum Co., Niagara Falls, N. Y.
Central Electric Co., Chicago.
Champion Foundry & Machine Co., Chicago.
Frank D. Chase, Chicago.
Chard Lathe Co., New Castle, Ind.
Charles J. Clark, Chicago.
Cincinnati Pulley Machinery Co., Cincinnati.
Cleveland Osborn Mfg. Co., Cleveland.
Cleveland Pneumatic Tool Co., Cleveland.
Clipper Belt Lacer Co., Grand Rapids, Mich.
Thomas E. Coale Lumber Co., Philadelphia.
Combined Supply & Equipment Co., Buffalo.
Corn Products Refining Co., Chicago.
Dale-Brewster Machinery Co., Chicago.
Davenport Machine & Foundry Co., Davenport, Iowa.
Davis-Bournonville Co., Chicago.
Dayton Molding Machine Co., Dayton, Ohio.
Deister Concentrator Co., Ft. Wayne, Ind.
Detroit Drill Co., Detroit.
Detroit Steel Products Co., Detroit.
Dings Magnetic Separator Co., Milwaukee.
Joseph Dixon Crucible Co., Chicago.
R. E. Ellis Engineering Co., Chicago.
Erwin Mfg. Co., Milwaukee.
Federal Foundry Supply Co., Cleveland.
Federal Machinery Sales Co., Chicago.
Foreign Crucibles Co., New York.
The Foundry, Cleveland.
Foundry Appliance Co., Newark, N. J.
Foundry Equipment Co., Cleveland.
Foundrymen's Supply Co., Milwaukee.
Warren F. Fraser Co., Westboro, Mass.
Garden City Sand Co., Chicago.
General Electric Co., Schenectady, N. Y.
General Steel Co., Milwaukee.
Gooley & Edlund, Cortland, N. Y.
Gordon Sand Co., Conneaut, Ohio.
Great Western Mfg. Co., Leavenworth, Kan.
Greaves-Klusman Tool Co., Cincinnati.
Grimes Molding Machine Co., Detroit.
Hauck Mfg. Co., Brooklyn, N. Y.
Hausfeld Co., Harrison, Ohio.
Hayward Co., New York.
Henry & Wright Mfg. Co., Hartford, Conn.
Herman Pneumatic Machine Co., Pittsburgh.
Hoevel Mfg. Corporation, New York.
Holcomb Safety Garment Co., Chicago.
Holland Core Oil Co., Chicago.

Hyatt Roller Bearing Co., New York.
Imperial Brass Mfg. Co., Chicago.
Industrial Electric Furnace Co., Chicago.
International Molding Machine Co., Chicago.
THE IRON AGE, New York.
Jennison-Wright Co., Toledo, Ohio.
Chas. Jurack Pattern Works, Milwaukee.
C. C. Kawin Co., Chicago.
Kearney & Trecker Co., Milwaukee.
Spencer Kellogg & Sons, Buffalo.
Kempsmith Mfg. Co., Milwaukee.
Julius King Optical Co., Chicago.
Laclede-Christy Clay Products Co., St. Louis.
H. M. Lane Co., Detroit.
Loewenthal Co., Chicago.
Lees Bradner Co., Cleveland.
David Lupton's Sons Co., Philadelphia.
Marshall & Huschart Machinery Co., Chicago.
McCrosky Reamer Co., Meadville, Pa.
McLain's System, Milwaukee.
McLain Carter Furnace Co., Milwaukee.
Mueller Machine Tool Co., Cincinnati.
Maclean Publishing Co., Toronto, Ont.
Macleod Co., Cincinnati.
Magnetic Mfg. Co., Milwaukee.
Mahr Mfg. Co., Minneapolis.
Marden, Orth & Hastings Corporation, New York.
Metal Industry, New York.
Metal & Thermit Corporation, New York.
Modern Tool Co., Erie, Pa.
Monarch Engineering & Mfg. Co., Baltimore.
Mumford Molding Machine Co., Chicago.
Munroe Calculating Machine Co., New York.
Napier Saw Works, Springfield, Mass.
National Engineering Co., Chicago.
New Chicago Crucible Co., Chicago.
Wm. H. Nicholls Co., Brooklyn, N. Y.
Norma Co. of America, New York.
Norton Co., Worcester, Mass.
Oakley Machine Tool Co., Cincinnati.
S. Obermayer Co., Chicago.
Oesterlein Machine Co., Cincinnati.
Ohio Machine Tool Co., Kenton, Ohio.
Oliver Machinery Co., Grand Rapids, Mich.
Oxweld Acetylene Co., Chicago.
Pangborn Corporation, Hagerstown, Md.
Pawling & Harnischfeger Co., Milwaukee.
Peerless Machine Co., Racine, Wis.
Peck Iron & Steel Works, Kalamazoo, Mich.
Penton Publishing Co., Cleveland.
George F. Pettinos, Philadelphia.
Phoenix Mfg. Co., Eau Claire, Wis.
Pickands, Brown & Co., Chicago.
Pittsburgh Furnace Co., Milwaukee.
Portage Silica Co., Youngstown, Ohio.
Henry E. Pridmore, Chicago.
Progressive Metal & Refining Co., Milwaukee.
Quigley Furnace Specialties Co., New York.
Racine Tool & Machine Co., Racine, Wis.
Richards-Wilcox Mfg. Co., Aurora, Ill.
Rivett Lathe & Grinder Co., Boston.
Roberson Process Co., New York.
Rogers, Brown & Co., Cincinnati.
Sand Mixing Machine Co., New York.
Schroeter Engineering Co., Chicago.
Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.
Simonds Mfg. Co., Fitchburg, Mass.
W. W. Sly Mfg. Co., Cleveland.
R. P. Smith & Sons Co., Chicago.
Werner G. Smith Co., Cleveland.
Southworth Machine Tool Co., Portland, Me.
Standard Optical Co., Geneva, N. Y.
The Standard Sand & Machine Co., Cleveland.
Sterling Wheelbarrow Co., Milwaukee.
Frederic B. Stevens, Detroit.
W. F. Stodder, Syracuse, N. Y.
Strong, Kennard & Nutt Co., Cleveland.
Sullivan Machinery Co., Chicago.
Swan & Finch Co., Chicago.
Thomas Elevator Co., Chicago.
Torchweld Equipment Co., Chicago.
United Compound Co., Buffalo.
United States Graphite Co., Saginaw, Mich.
U. S. Molding Machine Co., Cleveland.
U. S. Smelting Furnace Co., Belleville, Ill.
United States Silica Co., Chicago.
Wadsworth Core Machine & Equipment Co., Akron, Ohio.
J. D. Wallace & Co., Chicago.
Warner & Swasey Co., Cleveland.
Western Electric Co., New York.
F. H. Wheeler Mfg. Co., Chicago.
Whiting Foundry Equipment Co., Harvey, Ill.
E. J. Woodison Co., Detroit.
Young Brothers Co., Detroit.

NATIONAL SAFETY CONGRESS

Program of Annual Meeting to Be Held in St. Louis in September

The seventh annual safety congress of the National Safety Council convenes at the Hotel Statler, St. Louis, Sept. 16. The principal address at the public session will be made by Hon. Franklin K. Lane, to the title "Safety as an Asset in Winning the War." Charles M. Schwab, Director General Emergency Fleet Corporation, is scheduled to give the principal address at the opening session, his subject being "The Democratization of Industry." "The Economic Value of Health of Industrial Employees" by Dr. Thomas Darlington, American Iron and Steel Institute, New York, is also announced for this session. As a closing feature one of the latest industrial safety films will be shown. It will be at the third session of the day that the Secretary of the Interior will be the principal speaker.

Session for Safety Engineers

The program of Tuesday, Sept. 17, will open with a general session, arranged primarily for the benefit of safety engineers desiring to familiarize themselves with the fundamental principles and methods of securing success in their safety work. Charles R. Hook, vice-president operating division American Rolling Mill Co., will preside. The papers and their authors follow:

"The Real Problem of the Safety Engineer," by Charles R. Hook.

"How to Organize for Safety," by Frank E. Morris, safety engineer American Rolling Mill Co., Middletown, Ohio.

"Modern Methods of Safeguarding," by John J. Heelan, superintendent Bureau of Inspection and Accident Prevention, Aetna Life Insurance Co., Hartford, Conn.

"Does the Attitude of the Foreman Determine the Success of the Safety Engineer," by W. E. Worth, general superintendent, Chicago Tunnel Co., Chicago.

Tuesday afternoon a general round table discussion, under the direction of Chairman Phillip Stremmel, general superintendent Granite City Steel Works, will occupy the full time of the convention. Among the principal topics to be discussed will be "How to Get the Manager Interested in Safety" and "The Promotion of Community Interest in Safety as an Industrial Asset." A dinner and entertainment will follow, uder the direction of the mining and iron and steel sections.

Tuesday, Wednesday, Thursday and Friday will provide for sectional meetings. An informal dinner will be held Wednesday evening, Sept. 18. A novelty in the form of a five-minute address by President Woodrow Wilson, by long distance telephone, through courtesy of South Western Bell Telephone Co., will be a leading feature.

The foundry sectional session is scheduled for Tuesday morning, Sept. 17, and papers and discussions are announced as follows: "Foundry Management from Standpoint of Accident Prevention," by G. A. Hart, superintendent National Malleable Castings Co., Melrose Park, Ill.; "Lunch Rooms," by H. H. Haylett, employment and welfare manager, Benjamin Electric Co., Chicago; "Wash and Locker Rooms," by H. L. Krum, International Harvester Co., Deering Works, Chicago; "Eye Protection," by Buell W. Nutt, Strong, Kennard & Nutt Co., Cleveland; "Leggings," by William H. Horstmann, William H. Horstmann Co., Philadelphia; "Shoes," by B. C. Christy, safety inspector, International Harvester Co., Chicago.

Iron and steel safety meetings are to be held on Wednesday, Thursday and Friday mornings. The papers include: "Safety in the Steel Mill of Today," by Major K. M. Burr, Illinois Steel Co., Gary, Ind.; also by J. Stanford Brown, Henry Disston & Sons, Inc., Philadelphia; "Labor Turnover and Accidents," by A. H. Young, manager industrial relations, International Harvester Co., Chicago, and by J. M. Eaton, assistant to president, Lincoln Motor Co., Detroit; "Review of Electrical Hazards," by D. M. Petty, Bethlehem Steel Co., Bethlehem, Pa.; "Review of Educational Methods," by F. H. Elam, American Steel Foundries, Chicago, and by Thomas H. McKenney, South Works, Illinois Steel Co., Chicago; "Returning Injured Men to Employment," by F. F. Mackay, Timken Roller Bearing Co., Canton, Ohio; "Does Disciplining Pay in Safety?" by Grover G. Kingsley, Halcomb Steel Co., Syracuse, N. Y.; "Iron and Steel Industrial Safety Work of the Future," by J. C. Smith, Inland Steel Co., Indiana Harbor, Ind.

An automotive section meeting is on the program for Friday morning. The papers announced include: "Machine Shop Layouts and Their Relation to Safety," by C. A. Briggs, safety engineer Willys-Overland Co., Toledo, Ohio; "Safety in Punch Press Operation," by W. W. Roach, safety department Dodge Brothers, Detroit; "Necessity of Inspection for Overloaded Floors," by D. R. Livingston, superintendent safety division Reo Motor Co., Lansing, Mich.; "Selling Safety to Em-

ployees," by J. J. Lynch, Chevrolet Motor Co., New York; "Gasoline in the Industries When Used as a Solvent," by R. A. Shaw, safety department Ford Motor Co., Detroit.

Employees benefit associations are also to be discussed at the safety congress. Sessions are set aside on Tuesday and Wednesday mornings with addresses in part as follows: "How to Solve Its Problems and Operate It Successfully," by F. S. Bigler, vice-president Michigan Bolt & Nut Works, Detroit; "The Fees, Dues and Assessments," by W. L. Chandler, assistant treasurer Dodge Sales & Engineering Co., Mishawaka, Ind.; "Side Issues Which May Be Included to Advantage," by J. H. Goldie, manager welfare department Cadillac Motor Car Co., Detroit; "Getting and Measuring Results," by J. M. Eaton, assistant to president Lincoln Motor Co., Detroit.

Accidents in Metal-Working Industries

A remarkable chart, 14 ft. long and 20 in. wide, will be an interesting feature of the accident prevention exhibit at the seventh safety congress at St. Louis. The chart was prepared by the Industrial Commission of Wisconsin and is a comprehensive analysis of 41,000 industrial accidents, resulting in a theoretical loss of 6,000,000 working days. Five hundred and nineteen deaths are scheduled as taking place during the three-year period covered by the chart, together with 2400 permanent disabilities and about 38,000 temporary disabilities, each causing more than seven days lost time. Of these 41,000 accidents, only 7800 were caused by power-driven devices, of which 2660 were on metal-working machinery. Of the latter, nine resulted in death, nearly 500 in permanent injury, 1100 in temporary disability of two weeks or longer for each workman, and more than 800 caused one week or more of lost time. The classification, in part, is as follows:

Cause	Total Accidents	Deaths	Permanent Injuries	Days Lost
Borers	24	..	5	2,174
Buffers and polishers	51	..	1	1,353
Bull dozers	6	..	1	1,311
Drills (vertical)	256	2	27	34,051
Sanders	3	..	..	35
Emery wheels	422	..	28	36,787
Hammers, drop	53	..	10	6,733
Hammers, steam	43	..	5	4,641
Lathes	289	..	37	25,367
Milling machines	98	..	13	11,735
Planers	43	1	7	12,855
Pneumatic chisels	8	..	..	101
Pneumatic drills	10	..	1	554
Pneumatic hammers	19	..	..	449
Pneumatic riveters	18	..	3	1,186
Presses	810	1	257	176,273
Reamers	38	..	2	6,746
Riveters	38	..	9	7,988
Rolls (steel mills)	33	1	5	15,058
Saws	40	..	9	5,629
Shears	124	..	31	22,065
Spinning machine	8	..	2	2,185
Tumbling barrels	6	1	1	6,403
Wire drawers	5	1	..	6,095
Automatic metal-working machines	10	..	2	761
Other metal-working machines	205	2	34	36,357

The chart also gives the following tabulation:

		Days lost
Falling objects, total	2,478	149,785
including:		
from chutes and slides	158	5,471
from conveyors	58	1,295
from machines	270	4,401
from racks and shelves	495	25,464
from work benches	147	3,571
from objects tipping over	944	60,366
from piles falling	108	8,589
Flying particles, total	751	173,016
including:		
from metal in chipping	271	66,481
Falls of persons, total	4,160	397,632
including:		
from loading platforms	82	14,634
from runways and balconies	66	12,397
from stairs	321	28,806
from benches, boxes, chairs and tables	134	6,993
from machines and boilers	116	25,504
from piles	85	11,821
into bins and pits	65	14,784
into excavations	25	9,063
jumping voluntarily	26	16,120
jumping involuntarily	100	5,770
stepping on rolling objects	152	4,569
stumbling	572	34,495
slipping	1,933	84,963
stepping on nails or other sharp objects	481	14,092
striking against nails or other objects	1,461	126,306
injuries resulting from hard tools	3,093	142,505
handling of objects	9,221	545,760

Under "General Machinery" engines and motors caused 387 injuries, including 5 deaths—some of these occurred in metal-working establishments, although specific classification is omitted. Transmission apparatus, such as gears, pulleys, etc., added 201 injuries, with 13 deaths, to the total; while boilers, fans and other general types of machinery were responsible for 226 accidents—all grouped by causes rather than by injuries. Elevators caused 257 accidents of which 17 were fatal.

Discussing this chart, Carl Smith, secretary of the Central Mississippi Valley division of the council, formerly director of safety work at the Commonwealth Steel Co.'s plant at Granite City, Ill., said:

"Note the very large number of accidents in the last classification—handling of objects—which includes dropping, being caught between objects, handling rough or sharp objects, etc. Nearly all these accidents are the result of thoughtlessness and can only be prevented by persistently teaching the workmen to 'think safety.' The classification is too elaborate to select more than a heading here and there throughout the table. Two items, however, are indicative of the care and thought given its preparation: The handling of sheet-metal caused 255 accidental injuries, including one death, and more than 12,000 days lost time; while slivers caused 674 accidents with over 30,000 days lost time. The metal-working section of the National Safety Council will give the chart careful consideration at the safety congress."

New Rules for Tin Plate Exports

WASHINGTON, Aug. 27.—A number of changes have been made in the regulations governing exports of tin and terne plate and of articles into the manufacture of which tin enters. The War Trade Board in its announcement says that applications for licenses to export tin plate will only be received from the manufacturer or in cases where the applicant for license has bought directly from the manufacturer. To facilitate furnishing the additional requisite information called for by the new order the War Trade Board has prepared form X-4, which has to be duly executed and attached to the application for export license. Exportation of tin plate to Canada will be considered when it is shown that the material is to be used for a purpose for which it may be used in the United States.

Exporters will facilitate the consideration of applications for licenses to export tin plate to North and South America (except Canada and Newfoundland) and to Bermuda, West Indies, Falkland Islands, Galapagos, Aleutian Islands, China and Japan if, in addition to the above, evidence satisfactory to the War Trade Board is furnished showing that the tin plate to be exported will actually be consumed in the manufacture of containers for food to be consumed by peoples at war with Germany or by people inhabiting the country in which the food is packed, or for containers of food or alcohol to be used by the owners and employees of a manufacturing plant or mine or oil well, the product of which is used in the prosecution of the war by the United States or its Allies. Various other provisions, particularly governing manufactures of tin and tin plate, are contained in the new order, copies of which may be secured on application to the War Trade Board.

Sir Robert Hadfield, of Hadfields, Ltd., Sheffield, England, has put the iron industry under obligations on a number of occasions by translating and publishing in English the proceedings of meetings of the Vereins Deutscher Eisenhüttenleute. His last translation of this character, making a pamphlet of 64 pages, gives complete the proceedings of the general meeting of the above organization held at Duesseldorf, Germany, April 14, 1918. Some of the speakers on this occasion dealt with the retention of the Briey and Longwy iron ore districts as part of the mineral resources of Germany, to guarantee Germany's future both industrially and from the standpoint of military power. These views have been referred to in previous issues of THE IRON AGE.

ESTABLISHED 1855

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State Control After the War

However busy men are with thoughts of winning the war, speculation cannot be avoided as to what will be the trend after the war in the relations of the state to industry. Today all measures of control proposed are judged solely by the help they will give in winning the war. The motto of "force to the uttermost, force without stint or measure" is really in essence the motto also for the regulation of commerce and manufacture, in determining the relations between the Government and manufacturers and between manufacturers and workmen. The sole question is what will best conduce to exerting against the common enemy the greatest force of which the country is capable. Obviously this leaves to the future all decision as to how matters will be conducted after the war.

By force of circumstances there is a very strong trend towards state or public control of all operations, of everything that the individual does. All this "goes," to use the vernacular expression, for the vital and sufficient reason that we are at war. Whether it will "go" when we are again at peace is altogether a different matter. Will the mental attitude of the great majority of men be that of a revulsion from this control, as having been tolerable merely as one of the burdens of war, a thing necessary for doing what had to be done, ending the war by a complete and early decision? Or will it be that of an endorsement of much that has been done, as good for peace as well as war time?

If the decision proves to be made largely upon what may be called "sentiment," then the impression now being made upon men's minds by these things is an important index. Particularly in Great Britain, where state control has proceeded farther than in the United States, and where the thing has been a matter of actual experience for about three years longer than in the United States, should it be possible to find evidences of the spirit in which this control is received and the appraisal given of its value. There was a time, much earlier in the war, when some observers insisted that Britain was sick of control and would away with it as soon as the war was over, but that is not a dominant feeling today if it ever was.

The radical views expressed by W. L. Hichens, chairman of the well known British steel company, Cammell, Laird & Co., Ltd., early this year met considerable criticism, yet they have not been discredited. Mr. Hichens's analysis naturally suffered through his conclusions receiving much wider circulation than his review of the past and his arguments. He spoke, it may be recalled, at the James Watt anniversary. He pointed out that the industrial policy of the Elizabethan age was based on state regulation. Nations do not grow old; it is their institutions; and the trouble is that nations cling to their clothes when they have outgrown them. The old system had to go. A seven-year apprenticeship was imposed, a workman could not migrate, and all combinations of workmen or of employers to regulate labor conditions were forbidden, the state performing the function. The industrial policy had become unworkable long before Watt's time but the fact was not recognized until his steam engine produced such great changes in industry that abandonment became imperative. The death blow was delivered by the publication in 1776 of Adam Smith's "Wealth of Nations," yet the policy died only a lingering death. No sooner had the state abdicated in favor of "laissez faire" than "it was seen that the interests of the individual, if left unfettered, were not necessarily those of the community—in fact, that there was a most unscientific and embarrassing conflict between the two," as Mr. Hichens puts it. With the Factory Act of 1833 Britain began a new era, state control starting to establish itself again. The pace became more and more rapid until with the war it became "fast and furious."

Reverting to the suggestion that the decision between continuing state control and divesting the state of control as rapidly as possible may depend largely upon sentiment, it must be remembered that the people at home, employers and employees, will not have the whole voice. The returning soldiers will have much to say, and surely their sentiments will have to be viewed with respect. Not much imagination is required to sketch one picture as a possibility. The American soldier comes home after a great war, in which he has been supplied with food, clothing, arms, ammunition, all the wonderful paraphernalia of this modern war, in manner

that has already provoked the admiration of our Allies, so much nearer the battle front. The soldier asks, "How did you do it?" and the answer is, "By state control and co-operation." The soldier may then reply, "You took good care of me in the war and I want that system to take care of me and mine in future." That may or may not be the soldier's view. One is at liberty to guess for himself how the soldier will vote, but that there will be a "soldier vote" is hardly likely to be denied in any quarter and it is going to have much to do with the relations between the state and industry after the war.

Confusion as to Essential Industries

In connection with the announcement that the War Industries Board is preparing a new list of "essential industries," a so-called non-essential list issued by the Community Labor Board of the United States Employment Service for the District of Columbia, published elsewhere in this issue of THE IRON AGE, is attracting attention. Probably most people would agree that nearly all the "industries" enumerated as engaged in non-essential war work really belong in that class. Certainly it would not be difficult to dispense with at least a majority of the kinds of business named; but it seems hardly fair to classify dealers in automobile accessories and "junk" with pawnbrokers, peanut vendors, shoe shiners and other non-essential activities. Certainly it cannot be intended to include all automobile accessories and all collectors of iron, steel and other kinds of valuable old material. There is a growing scarcity of scrap at the present time and the labor situation in the old material industry is serious. General Crowder, recognizing this condition, has issued an announcement that the scrap business is considered an essential.

Although opinions may differ as to what is and is not essential, it is highly important that if a ruling is to be made or a list prepared, there must be one ruling or one list for the entire country. If many local boards are to follow the example of the District of Columbia board and declare certain industries to be essential or otherwise, regardless of any decision rendered by Federal boards and officials, there will be endless confusion. The list to be announced by the War Industries Board should supersede all other lists.

Ship Plates

Iron and steel market reviewers have made various statements concerning the extent to which plate mills are supplying the current demand of shipyards. It is not uncommon to read that mills are shipping plates considerably in excess of the rate at which plates are going into ships. Again, publication is made of the fact that shipyards are unable to work at full capacity because of lack of steel. Only last week Director General Schwab stated that work on some ships would have to be suspended if steel did not come to these yards at once.

The fact is that there was last week roundly 1,100,000 tons of ship steel that had left the mills and had not entered into the construction of ships. This reservoir represents steel on the way from the mills to shipyards or fabricating plants, steel on the way from fabricating plants to shipyards, or steel in stock at shipyards. This seems like a large enough reservoir when it is considered that it represents enough steel for about 4,000,000 dead weight tons of ships.

But other factors enter into the question. It is true that some shipyards have a large stock of steel on hand or in transit to or from the fabricating shops; but it is also true that other yards have practically no stock ahead and little or nothing in transit. In the total of 1,100,000 tons some yards are represented by as high as 30,000 or 40,000 tons, while other yards have but a few hundred tons, and two or three have less than 100 tons. The fact is also that some mills have shipped to a certain yard within a month twice or three times as much steel as the yard needed in that month, while other yards were denied steel absolutely needed to prevent a shutdown. It is these inequalities in the situation that make the trouble.

The record production of 117,000 tons of plates in a recent week represents a splendid response on the part of the plate mills; but the extent to which this activity can be represented in ship output depends on the way in which orders have been handled all along the line. Overshipment to some yards and undershipment to others defeat to that extent the program of the United States Shipping Board. It is pertinent to say, therefore, that co-operation will win the war just as truly as ships or food or steel. And co-operation has been like the supply of steel, abundant in some cases and in short supply in others.

Electric Furnaces and Electrodes

It would be a serious matter, were it necessary even as a war measure, to limit the expansion of the electric steel industry of this country. Much has been said recently regarding an electrode shortage and the possibility that further installations of electric furnaces might be refused. It does not now seem probable that such a step will be necessary, at least not because of any lack of electrodes.

It develops that at no time thus far has any electric steel producer or other user of electrodes been obliged to shut down because of inability to obtain electrodes. It is also a fact that not only has the largest maker of carbon electrodes increased its capacity, but other smaller producers have taken the same step. It is also true that a large company in Pennsylvania has entered the electrode field with a new plant involving a million dollars in capital. Three consumers of electrodes at Latrobe, Pa., have combined in a project to make the electrodes they consume. There is not and cannot be a shortage at present.

It is true that priority orders are essential for the installation of new electric furnaces, but this procedure is necessary for other forms of steel plant also. Progress in the electric steel industry has gone on thus far with practically no check. Demand for steel castings for ships and for gun mounts

and other ordnance is increasing with each month. It has been intimated that already the steel casting capacity of the country is equal to the demand. This does not appear to be the case. It is likely that to win the war more and more steel casting and other war steel will be necessary. Demand and need for electric furnaces are not likely to let up, and without regard to the future and only to win the war their installation is likely to be favored.

Reasons both metallurgical and economic are numerous why encouragement should be given to electric furnace installations for producing castings, gun steel, alloy steels or even ingots. Chief among them is economy in pig iron, manganese and man power. As an instrument for the production of quality steel in quantity, the efficiency and necessity of the electric furnace are unquestioned. Significant in this connection is the fact that the War Department already has several of these furnaces producing gun and other munition steel, also that the Steel Corporation's entire electric furnace capacity is now engaged in making such material.

Violating the Scrap Regulations

After a period of weeks in which the iron and steel scrap committee of the American Iron and Steel Institute, whose authority links directly back to the President of the United States, sought quietly to curb the tendency to violate the regulations relative to the grading of heavy melting steel scrap and class C low phosphorus scrap, the institute committee and the American Board of Scrap Iron Dealers each issued a circular letter to their respective clienteles last week, calling for an immediate ending of the violations under threat of "drastic action." The circulars are printed elsewhere in this issue and fully outline the situation for those not engaged in these practices. Those who have been so engaged require no explanation, for they could not escape an understanding of the regulations and therefore recognition that certain practices violated them.

Iron and steel price regulation has worked so well, even better than either the Government agencies or the pig iron and steel producers expected it would, that it is a misfortune that this little business of steel scrap should make such a blot upon the fair record. There can be no excuse for the practices that are now publicly condemned. The steel makers have been treated fairly in the matter of the disposal of their product and have admitted that the regulation is a good thing. Those who entered into contracts which went counter to the official classification had no right to pick upon one item in the regulations and adopt the idea that while the system as a whole is right violation of this one provision is excusable.

The scrap dealer, the other party to these violations, has been given everything he asked. He asserted that he needed a commission. There was a difference of opinion, but the commission was granted, even to the yard man. In arguing the matter, the scrap dealer cited on his side all the difficulties he encountered in continuing his business under war-time regulation, blinking the obvious fact that the removal of speculative possibilities was in part responsible for his narrowed field. Speculation in copper, in a multitude of commodities, has been eliminated, and many who had made their living thereby have been completely put out of business, with little if any complaint on their part. The scrap speculator was treated better, for he was allowed a commission.

The argument has been used that these violations did not impede but rather helped the prosecution of the war, and that the Government lost nothing. The plain fact is that in every contract whereby a dealer receives, and a mill pays, $34 for material that should be priced at $29 under the regulations, the Government is a loser. When a mill pays $5 a ton more than it should pay it reduces its profits by that amount and $4 of the last $5 profit of the mill is going to belong to the Government, in nearly every instance, if the proposed tax measure is enacted.

It is unfortunate that the practices of some members of the scrap trade represent a different rating of the binding effect of a contract from that which prevails generally in the iron and steel trades. Transactions between buyers and sellers of scrap have been largely a matter of "give and take." Each party has had more or less of a grudge against the other, has had something he sought opportunity to "give" because of what he had been forced previously to "take." That is why the regulations in scrap have not worked as well as those in pig iron and finished steel products. Now that the violations of the steel scrap regulations have been aired, it is to be hoped that the practices will immediately cease and the existing contracts be canceled. Otherwise the great mass of the trade will be glad to see imposed upon the few offenders the "drastic action" that has been promised both by the scrap committee of the American Iron and Steel Institute and by the American Board of Scrap Iron Dealers.

A QUESTION OF PRIORITY

Sub-Contractors on Government Work Must Apply for Rating

An important company, a manufacturer of tin plate, writes to THE IRON AGE as follows, raising the question as to priority in shipments, where the buyer is a sub-contractor engaged on Government work:

"We find that a great deal of very valuable time is being lost on important war work by failure on the part of steel users to grasp in full the workings of the rules and regulations governing priority in production, as issued by the Priorities Division of the War Industries Board. Among our customers it is the exception to find a concern only fairly well posted upon these regulations, while the great majority seem to be entirely ignorant of them. We are doing all we can along the lines of education through our salesmen and our daily correspondence with these concerns, but feel that we are poor instructors, since we are not entirely clear as to the purport of paragraph 7 of the circular No. 4 of July 1, 1918, which was given in your issue of Aug. 1. It would appear to us from the wording of this paragraph that automatic classification can only be given to the orders placed by the Government officials, direct with the principal contractors, and that sub-contractors have no way of participating in this automatic classification. Sub-contractors, having no relations with the Government officer placing the principal order, would appear to be barred from participating in the automatic classification extended under paragraph 7 to a great

variety of important war work, as defined in paragraph 3.

"A majority of our customers still appear to be under the impression that it is necessary to do no more than mention the class of priority granted to the principal contractor to secure corresponding priority from the mill on sub-contracts, whereas we have been told by a member of the Priorities Committee that the classification given to any order applies only to that particular order and has no bearing upon sub-contractors.

"We repeat that much war work of a very important nature is being delayed through lack of understanding, or misunderstanding of these regulations. We have personal knowledge of many cases of this kind. This is not as it should be in a country of our reputation for organization and efficiency.

"We appeal to you for a brief, concise explanation of these rules and regulations as they apply both to the principal contractor, and to sub-contractors all down the line, in such form that 'he who runs may read.' This should be of incalculable benefit in clearing up the present muddle."

The ruling of the Priorities Division, as THE IRON AGE understands it, is that the automatic A-5 classification provided for in section 7 of circular No. 4, dated July 1, 1918, applies only to the original Government order, and then when it carries an indorsement personally signed by the officer placing the order. Our correspondent is right in saying that the sub-contractor does not participate in this automatic classification. Whenever such sub-contractor is unable to obtain delivery of the materials necessary to carry out his contract under the automatic class C rating, he should make application to the Priorities Division on the regular form P. C. 15 for a higher rating. Our understanding is that such separate priority application has not been required on sub-contracts having to do with Emergency Fleet Corporation work. However, on such work the sub-contractor would still need to make affidavit in the way provided for in circular No. 4, when ordering material from a mill or other producer.

The provisions of section 8 of circular No. 4 seem quite clear. While the ratings there referred to are automatic, it is specifically indicated that an affidavit is necessary in every case. It is to be said, therefore, that "the impression that it is necessary to do no more than mention the class of priority granted to the principal contractor, to secure corresponding priority from the mill on sub-contracts," as referred to in our correspondent's letter, is entirely erroneous, whether the case is covered by section 7, section 8, or section 9, relating to automatic classifications.

Fewer Blast Furnaces to Make Ferromanganese

Of decided interest is the reported plan of the War Industries Board to reduce the number of blast furnaces producing ferromanganese. It is stated that some of the 20 or more furnaces that have been making ferromanganese will be changed over to making pig iron, so acute is the shortage of the latter. It is evident that more ease is felt regarding ferromanganese supplies than as to pig iron. It is also understood that it is the intention to encourage the manufacture of electrolytic ferromanganese by supplying such makers with the necessary ore. There does not appear to be a lack of manganese ores, imports from Brazil continuing at a good rate, while domestic production, particularly in Montana, is increasing. The blast-furnace reports of THE IRON AGE for July show that 16 blast furnaces made about 30,000 tons of ferromanganese, next to the record output, which was about 35,000 tons in May. There are now four companies in the country making ferromanganese electrolytically, with the possibility that another such plant can be put in operation at once. There is no difficulty in making 80 per cent alloy by this process.

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"The Iron Age" and Its Readers

Among articles of technical import the contributions this week and last week by Mr. Poppleton rank high in giving mill-operating information not to be found in book or periodical literature. Especially noteworthy are the detailed directions for installing sheet galvanizing machinery and the free explanation of measures which must be resorted to to keep things operating.

Every week brings added evidence of the thought manufacturers are giving to after-war conditions. These columns have been reporting the opinions of men in a position to have a wide outlook; and editorially and otherwise our readers have been given light on the likely trends in world trade and on the character of demand likely first to engage attention after the first lull following an armistice. They may continue to count on the prompt passing on to them of new opinions and developments that will help in their own plant readjustments for peace-time competition.

Of the plan devised by the circulation department of THE IRON AGE to assist subscribing firms in getting this journal thoroughly read by designated persons in various departments, details will be given in this column later.

Aligning Many Industries on a War Basis

Department of Labor Issues Strong Appeal to Country, Urging Importance of Getting Along Without Non-essentials

Blank to be Used by Employers in Making Application to Reclaim Labor

WASHINGTON, Aug. 27.—The following application blank covers the questions which must be answered by employers seeking to "reclaim" highly skilled labor for a "necessary industry." It is particularly important to give the present military location of the man sought to be reclaimed. When properly filled out, in duplicate, the application should be mailed to Skilled Labor Section, U. S. Employment Service, Department of Labor, Washington, from which copies of the application blank may also be obtained.

Dated at .....
..... 191.....

Application is hereby made for the return of the following enlisted man:
Name .....
Residence .....
How long has this man been in your employ? .....
Describe task on which this man is or is to be employed.....
.....
.....
What is his trade? .....
What period is required to make a man efficient on this task?
.....
Can you secure any other person to fill this position satisfactorily?
.....
State what effect it will have on production should this man not be returned to his former position .....
.....
Furnish any other information showing why it is necessary to have this man furloughed .....
.....
Registered local board ..... Order No.... Serial No....
Last reported at camp .....Unit .....
Taken into army .....191....
Did he enter army through draft or enlistment? .....
If through draft, was his claim denied by district board? .....
Why was claim denied? .....
Is anyone connected with your concern related to this man? .....
If so, to whom is he related and how? .....
.....
We ask that he be directed to report to .....
.....
We have the following direct Government contracts: .....

Date.	Gov't Order No.	Quantity	Description	Dep't of Gov't
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....

We are under contract with the following, who have direct Government contracts from ..... department:
.....
.....
We have established our status as "necessary" industry with District Board No. ..... of State of .....
located at .....
.....
.....
.....
By ..... Title.
Sworn to before me at .....
this ..... day of .....191....
.....
.....
Title of official administering oath.
I have checked the foregoing statements and have found them to be correct.
.....
.....
Local representative of Department of Labor.

WASHINGTON, Aug. 27.—Labor shortage in the United States—skilled as well as unskilled—has become so critical that there are reports of serious interference with important war work. The Department of Labor reports promise little relief, and the new draft law with its registration of a vast majority of the men left in industry does not make the prospect any brighter.

The most serious shortage is still that of unskilled labor. Concerning this, the Department of Labor issued a special warning to the country that the alignment of all industries on a 100 per cent war basis has become an immediate and imperative necessity.

"So acute is the labor shortage," says the departmental statement, "that completion of a number of important war projects for the Army and Navy is being delayed. No idle labor of any real value exists from which to draw the men needed to keep contracts on scheduled delivery. Non-essential production must be curtailed wholesale to release men for war work. Only thus can the balance be re-established and assurance given that adequate supplies and ammunition will be provided for the fighting forces."

The facts as to the present war labor situation were brought out at a conference of field agents of the United States Employment Service of the Department of Labor in Washington. Reports from every section of the country told the same story of exhausted labor reserves and increasing shortages for war work.

"The time has come for the entire nation to realize that business as usual is no longer possible," Nathan A. Smyth, assistant director of the United States Employment Service, declared at the conference. "It is a question of winning the war quickly and finally or having it drag on indefinitely to an indefinite end. If we are to win the war quickly, the production of luxuries and non-essentials in this country must come to an end. Classification of what are essentials at the present time has been brought by the War Industries Board to the point where definite action can be taken. We are faced with a condition which means a great lesson to be learned by the American people. When the people know the facts, they will rise to the situation.

"The force of public opinion must get the country on a complete war basis right away. Manufacturers must give up the creation of needless goods, workers must be willing to change from non-essential to war production even at hardship to themselves; the public at large must stop buying luxuries and thereby make the problem of curtailing non-essentials easier. Manufacturers must accept the burden of developing untrained workers to take the places of skilled men who go to more important work.

"Every man and woman must measure the value of his or her work only as it counts toward the winning of the

war. We must be ready to go as far in this as England and France have done and no Government machinery, the United States Employment Service, or any other agency, can accomplish this without the awakening of the American people to the need."

Concerning skilled labor, the reports of the Department of Labor are similarly alarming.

"The shortage of skilled labor in war industry," says an official announcement of the department, "is critical. The reserves virtually are gone. It is conjectural whether the present and future needs of the war industries for machinists, boilermakers, and other skilled workers in most demand can be met even if every non-war enterprise should give up the whole of its force of men of these needed crafts. This indicates the danger of temporizing with the question of transfers from non-war work and the necessity for the release of such men by non-war employers either voluntarily or through pressure of public opinion.

"It is estimated that not more than 20 or 25 per cent of the total machinists in the country still are engaged on non-war work and some of these potential workers, for family or other primary considerations, could not readily move to war industrial centers. While the entire skilled labor needs of war production are not known, it would appear that this potential reserve is inadequate and that war manufacturers must carefully conserve their existing forces, see that no good man is wasted or put on work that a less skilled man could perform and train partly skilled men, while non-war manufacturers must give up their men to war work.

"In the order named, the craftsmen in most pressing demand are: machinists, boilermakers, riveters, chippers, calkers, molders, and structural ironworkers. Coppersmiths, few in number compared with these other trades, are in demand far in excess of their number. The International Association of Machinists, International Brotherhood of Boilermakers, the Sheet Metal Workers' International Union and other organizations are assisting in the transfer activities by appealing to men in these crafts to go to war employment and in many instances are placing non-members in closed shops in order that war production may be speeded up. E. C. Davidson, secretary and treasurer of the International Association of Machinists, has sent a statement to the Employment Service which says in part:

> Out of a total number of 1152 points that reports were called for, 253 points have made report, showing that 89,013 machinists are employed on essential war work. The same 253 points report 25,211 machinists employed on non-essential work and 4628 machinists in active war service in the army. (These figures do not include those who have been called into service since July 1).
>
> Estimated on the above figures, the total number of machinists employed on essential war work is 400,554; in non-essential work, 113,449. These figures are estimated, based upon the averages of the 253 points covered. Upon this same average estimate, machinists—members of the International Association of Machinists—in active service in the army number 20,826.

"Mr. Davidson estimates that the transfers of machinists from non-war to war work show an approximate average of 10,000 men a month. Of the 89,013 machinists reported as engaged on war work, he continues, approximately 80 per cent have been transferred through the efforts of the United States Employment Service."

Transfers of machinists and other skilled craftsmen from non-war work to war production through the United States Employment Service of the Department of Larbor are increasing. During the past few weeks, several thousand skilled workers of trades in greatest demand for war production have been recruited from non-war projects and the recruiting system and machinery is being rapidly extended. Forty-three examiners, composed of skilled craftsmen, comprise a skilled labor recruiting corps which the employment service is sending throughout the country. Twenty-nine are machinists, 10 are boilermakers and four sheet-metal workers. Already they have covered 15 States in a fairly comprehensive manner, and touched upon 11 others. The States covered by these examiners so far have been Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, Kansas, Ohio, Indiana, Georgia, Missouri and Michigan. States which have been touched are Maine, New Hampshire, Vermont, Illinois, West Virginia, North Carolina, Kentucky, Tennessee, Florida, Alabama and Nebraska.

Ordnance Board on Metallurgical Matters

To assure the more complete co-ordination of the various ordnance departmental activities along metallurgical lines, it has been decided to establish a board on metallurgical matters. The appointment of this board will also assure, it is believed, the complete co-ordination of similar activities of the different divisions of the War Department and the War Industries Board. The personnel of the board is as follows:

> Dr. G. W. Sargent, Engineering Division, chairman.
> Lt.-Col. W. P. Barba, Production Division.
> Major A. E. White, Inspection Division, representing the Ordnance Department.
> Lt.-Col. F. B. Richards, of the office of the Assistant Secretary of War.
> L. L. Summers, representing the War Industries Board, and,
> William H. Smith, representing the manufacturers.

The board will act not only for the various sections of the Ordnance Department, but also in connection with the manufacturers working for and with the department in the production of war material, and will gather the most recent and complete information on all metallurgical products.

Zinc Prices Continued

WASHINGTON, Aug. 27.—Announcement of zinc prices has been made by the War Industries Board. Under an agreement with the manufacturers of sheet and plate zinc, approved by the President, the maximum base prices of 14c. per lb. f.o.b. plant for plate zinc, and 15c. per lb. f.o.b. plant for sheet zinc are to be continued on deliveries from Sept. 1, 1918, to Jan. 1, 1919, subject to the usual trade discounts and extras or differentials that were in effect Feb. 13, 1918. These discounts and extras are to be effective on all contracts executed between Feb. 13, 1918, and Jan. 1, 1919. Sheet zinc shall be considered as including all gages of ⅛ in. thickness and less and plate zinc as including all gages thicker.

Under the agreement of producers of grade A zinc the maximum price of 12c. f.o.b. East St. Louis, is continued on deliveries between Sept. 1, 1918, and Jan. 1, 1919. The price at point of delivery is to be the East St. Louis price plus the freight from East St. Louis to point of delivery.

The Wellman-Seaver-Morgan Co., Cleveland, has recently taken an order from the Semet-Solvay Co. for three coke pushers, two for the North Birmingham, Ala. plant of the Sloss-Sheffield Steel & Iron Co., and one for a plant that will manufacture domestic gas in Cleveland. The order includes coke guides and mudding cars. Another order is for two coke pushers for the Fairfield, Ala., plant of the Tennessee Coal, Iron & Railroad Co. The company has on its books other orders for 15 coke pushers for the various by-product plants. It has also recently taken an order from the Pittsburgh Crucible Steel Co. for a movable car dumper to be installed at Midland, Pa., for handling coal and ore, a 7000-lb. charging machine with charging boxes for the Pacific Coast Steel Co. and a special side charging machine for the Trumbull Steel Co.

In the notice of the sale of the Slatington Iron & Steel Co., Slatington, Pa., as published in THE IRON AGE of Aug. 15, it was stated that the capacity of the plant is 1500 tons per year of bar iron. This was erroneous, as the capacity is 15,000 tons.

Iron and Steel Markets

WAR STEEL SHORTAGE

New and Heavy Demand from France and at Home

Steel Producers Meeting in New York—Advance in Pig Iron Prices Urged

With more emphasis than ever the War Industries Board has put before the steel trade in the past week the imperative call for rails, plates and shell steel. New needs cabled from France have added to the gap between capacity and requirements, and the amount now wanted in the last four months of the year will bring the total for the second half up to 23,000,000 tons, as against an estimate of 20,000,000 tons early in July and probable production of 17 to 18 millions for the six months.

Yet output does not increase, and every nerve must be strained to make up in September for the inroad made by an unusual number of hot and highly humid days in August.

A swelling of overseas demand, due to the aggressive activities of the Allied forces, has changed greatly the operating schedules of the mills. Urgent calls have been received for rails, rolling stock and shell steel and temporarily some home needs, even cars for our own roads, may have to stand aside.

Coming immediately after a heavy distribution of 82 mm. shell bars, an emergency order for 140,000 tons more of this steel, with the same amount to go each month up to February; the allocation of 75,000 tons of rails for France, and the orders now being distributed for 122,500 tons of plates and shapes for new construction in Japan for the Emergency Fleet Corporation, have already made the expected larger purchases of cars for France a matter of the farther future. Rush construction will be given 4000 narrow-gage cars for the Army abroad, following the placing last week of the 20,000 additional 30-ton cars; and many more of these larger size cars are wanted.

A conference at Washington Friday on ways and means of increasing pig-iron output brought fresh promises of help from both the fuel and railroad administrations. It developed that ferromanganese supply is now sufficient to permit turning a few blast furnaces for a time from that product to pig iron. The fact that these are all small caliber furnaces only accentuates the pig-iron famine.

On top of all, Great Britain, France and Italy are asking for heavy pig-iron shipments in 1919. Great Britain wants 1,000,000 tons or more but may get little.

The meeting of iron and steel producers now on (Wednesday) in New York was called to prepare for the quarterly price conference in Washington next month. An innovation is the attendance of important consumers of steel. Pig-iron producers come out strongly for an advance in their prices and insist that steel producers, who are buyers of basic iron, did not properly represent the pig-iron industry in reducing basic iron $1 a ton in March. Some smaller furnace companies want the Government to take over their stacks if no advance is granted. Zone prices and "Valley basing" (Mahoning and Shenango Valleys) are again agitated.

The deadlock on rail prices was unbroken at the Washington meeting of last Thursday. The high costs of some producers brought up again the proposal of Government purchases at different prices to different mills. A flat price of $55 for Bessemer and $57 for open-hearth rails may be agreed on subject to change Oct. 1.

The details of the $5 a ton concession on implement steel are being arranged. The cold-rolled shafting schedule was arranged in a New York meeting last week. Prices on disks are a sticking point, and implement makers and steel men are wide apart at 7c. and 12c.

In order that more ship, shell and rail steel may be turned out, pipe, sheet and wire mills will be cut down further in output. Some wire plants are now on a 50 per cent basis and may be reduced still further.

Last year's heavy accumulations of export steel at Atlantic ports waiting for ship room were cut down 700,000 tons in the first seven months of this year. Mills have been urged to build up stocks for France at seaboard against the railroad blockades of winter, but thus far have fallen steadily behind the ocean movement.

Transportation service to the steel industry which had been good for several months fell down noticeably in August. Coal companies have been able again to lay short coke supply at the door of the railroads.

Stringent conservation of lead is now urged by producers, whose regulation of the industry is still free from formal Government price fixing. Spelter prices have been reaffirmed at Washington to continue to Jan. 1.

Pittsburgh

PITTSBURGH, Aug. 27—(*By Wire*).

The visit to Pittsburgh last week of Director of Steel Supply J. L. Replogle and James B. Bonner, Vice-Chairman of the Sub-Committee on Steel Distribution of the American Iron and Steel Institute, was to make a general survey of the steel conditions in the Pittsburgh district, and incidentally to speed up production and fabrication of ship plates. Meetings were held by Messrs. Replogle and Bonner and local steel men, at which plans for the future were fully discussed, and the Director of Steel Supply took occasion to impress on the local steelmakers that the Government wanted every ton of steel plates that can possibly be turned out, and if there is any way by which output can be increased the mills are expected to adopt it at once. Mr. Replogle stated that more output of

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

	Aug. 27 1918	Aug. 20 1918	July 23 1918	Aug. 29 1917
Pig Iron, Per Gross Ton:				
No. 2 X, Philadelphia	$34.40	$34.40	$34.40	$53.00
No. 2, Valley furnace	33.00	33.00	33.00	52.00
No. 2 Southern, Cincin	36.60	36.60	36 60	49.90
No. 2, Birmingham, Ala.	33.00	33.00	33.00	47 00
No. 2 furnace, Chicago*	33.00	33.00	33.00	55.00
Basic, deliv., eastern Pa.	32.90	32.90	32 90	50.00
Basic, Valley furnace	32.00	32.00	32 00	48.00
Bessemer, Pittsburgh	36.60	36 60	36 60	51 05
Malleable, Bess., Ch'go*	**33.50**	**33.50**	**33.50**	**55.00**
Malleable, Valley	33 50	33.50	33.50	52 00
Gray forge, Pittsburgh	33.40	33 40	33 40	46.95
L. S. charcoal, Chicago	37.85	37.85	37.85	58.00
Rails, Billets, etc., Per Gross Ton:				
Bess. rails, heavy, at mill	$55.00	$55.00	$55.00	$38.00
O.-h. rails, heavy, at mill	57.00	57.00	57.00	40.00
Bess. billets, Pittsburgh	47.50	47.50	47.50	75.00
O.-h. billets, Pittsburgh	47.50	47.50	47 50	75.00
O.-h. sheet bars, P'gh	51.00	51.00	51.00	80 00
Forging billets, base, P'gh	60.00	60.00	60.00	100.00
O.-h. billets, Philadelphia	51 30	51.30	51 30	90.00
Wire rods, Pittsburgh	57.00	57.00	57.00	90.00
Finished Iron and Steel, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	3.73	3.73	3.73	5.185
Iron bars, Pittsburgh	3.50	3.50	3.50	4.75
Iron bars, Chicago	3 50	3 50	3.50	4.50
Steel bars, Pittsburgh	2.90	2.90	2 90	4.00
Steel bars, New York	3.145	3.145	3.145	4.695
Tank plates, Pittsburgh	3.25	3.25	3.25	8 00
Tank plates, New York	3.495	3.495	3.495	8 945
Beams, etc., Pittsburgh	3 00	3.00	3.00	4.00
Beams, etc., New York	3.245	3.245	3.245	4.695
Skelp, grooved steel, P'gh.	2.90	2.90	2.90	4 00
Skelp, sheared steel, P'gh.	3.25	3.25	3.25	6 00
Steel hoops, Pittsburgh	3.50	3.50	3.50	5.75

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	Aug. 27 Cents	Aug. 20 Cents	July 23 Cents	Aug. 29 Cents
Sheets, black, No. 28, P'gh.	5.00	5.00	5.00	8.50
Sheets, galv., No. 28, P'gh.	6.25	6.25	6.25	10.00
Wire nails, Pittsburgh	3.50	3.50	3.50	4.00
Cut nails, Pittsburgh	4.00	4.00	4.00	4.65
Fence wire, base, P'gh	3.25	3.25	3.25	3.95
Barb wire, galv., P'gh	4.35	4.35	4.35	4.85
Old Material, Per Gross Ton:				
Carwheels, Chicago	$29.00	$29.00	$29.00	$31.50
Carwheels, Philadelphia	29.00	29.00	29.00	34.00
Heavy steel scrap, P'gh.	29.00	29.00	29.00	34.00
Heavy steel scrap, Phila.	29 00	29.00	29.00	32.50
Heavy steel scrap, Ch'go.	29.00	29.00	29.00	31.00
No. 1 cast, Pittsburgh	29.00	29.00	29.00	30.00
No. 1 cast, Philadelphia	29.00	29.00	29.00	33.00
No. 1 cast, Ch'go, net ton	30.00	30.00	28.25	24.00
No. 1 RR. wrot, Phila.	34.00	34.00	34.00	45.00
No. 1 RR. wrot, Ch'go, net	29.75	29.75	29.75	34.00
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$6.00	$6.00	$6.00	$12.00
Furnace coke, future	6.00	6.00	6.00	10.00
Foundry coke, prompt	7.00	7.00	7.00	13.50
Foundry coke, future	7.00	7.00	7.00	12.50
Metals:				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	26.00	26.00	26.00	25.50
Electrolytic copper, N. Y.	26.00	26.00	26.00	25.50
Spelter, St. Louis	**9.25**	8.87½	8.37½	8.12½
Spelter, New York	**9.50**	9.12½	8.62½	8.37½
Lead, St. Louis	7.75	7.75	7.75	10 42½
Lead, New York	8.05	8.05	8.05	10.55
Tin, New York	88.00	92.00	94.00	61.50
Antimony (Asiatic), N. Y.	**14.25**	13.75	13.25	15.00
Tin plate, 100-lb. box, P'gh.	$7.75	$7.75	$7.75	$11.00

shell steel and plates would have to come, and for the purpose of getting this, capacity now engaged in making pipe, sheets, wire products and steel bars would be diverted to making shell steel. As a result, the American Steel & Wire Co., the Jones & Laughlin Steel Co. and other steel companies are at work on plans to make shell steel, or to increase present output. It is possible that before long the entire Donora steel plant of the American Steel & Wire Co. will be on shell steel.

Judge Gary has called a general meeting of steel producers and leading consumers to be held in New York on Wednesday, Aug. 28, at which it is proposed to go carefully over the whole steel situation. Producers of any kinds of material who believe prices on their products are too low, are to be given a full hearing, and after this has been done another meeting will be held by the general iron and steel committee for the purpose of getting the claims for higher prices in concrete form, and presenting them to the War Industries Board at Washington, when the time comes to take up steel prices for last quarter. The meeting will be a very important one, and Pittsburgh manufacturers will be well represented. The pig iron makers are to present strong claims for an advance in prices of $2 to $3 a ton, but if this should be allowed, it would likely necessitate a revision in prices on many finished lines to a higher basis. It is said Washington does not look with favor on a higher steel market, and strong evidence will have to be presented before any advances will be recommended to the President, who has the last say in the matter.

Pig Iron.—It is said that allocations for over 500,000 tons of pig iron have been made since the movement started. In one week 166,000 tons was allocated, the next week 35,000 tons and last week 25,000 tons. Independent furnaces are strong in their claims that prices on Bessemer and basic iron must be advanced for fourth quarter. One furnace interest has stated that it will not buy any ore for next year unless the price of pig iron is advanced, but will turn its furnaces over to the Government and allow it to run them. No pig iron is being sold, as there is none to be had. Some consumers are getting uneasy about their supply for first half of next year, but furnaces as a rule are not selling into next year. It is said that consumers of pig iron that are making strictly war essentials are getting good deliveries of iron, but all the steel companies are very short, and would gladly buy iron if they could find it.

Basic pig iron, $32; Bessemer, $35.20; gray forge, $32; No. 2 foundry, $33; No. 3 foundry, $32.50, and malleable $33.50, all per gross ton at Valley furnace, the freight rate for delivery in the Cleveland and Pittsburgh district being $1.40 per ton.

Billets and Sheet Bars.—There is no change in the situation. The shortage in supply of sheet bars is getting worse steadily, and last Saturday the railroads put an embargo on the Youngstown mills, preventing them from shipping steel into the Pittsburgh district. The output of soft billets and sheet bars is getting less, the Government demand for shell steel being steadily larger. Shell steel discards are now being used for making wire products and other finished materials, as it is the only kind that can be had.

We quote 4 x 4 in. soft Bessemer and open-hearth billets at $47.50, sheet bars $51, forging ingots $73, and forging billets $60 base, all f.o.b. at mill, Pittsburgh or Youngstown.

Plates.—Mills rolling plates are speeding up output all they can and the output this month is expected to be larger than in July, which was a record month. The most pressing Government needs are for ship plates, but the steel car companies are also heavy consumers, having more car orders on their books now than for a long time. It is said that only in a few cases have the mills fallen behind the schedules in deliveries of plates to the shipyards. Mills are filled up for months on Government work. We quote ¼ in. and heavier sheared plates at 3.25c. at mill, Pittsburgh, for third quarter.

Ferroalloys.—There is still an active demand for

ferromanganese for first half delivery, and some fairly large lots have been sold. However, some consumers seem in no hurry to cover. One large producer of Bessemer ferrosilicon is not selling for next year, regarding the outlook as too uncertain. Sales of 25 per cent ferrosilicon are said to have been made at $110 and $115 at maker's furnace.

We quote 70 per cent ferromanganese at $250 delivered, 16 per cent spiegeleisen at $75 at furnace and 50 per cent ferrosilicon for prompt shipment at $160 and for delivery over the last half of the year, $150 to $155 at furnace, the furnaces usually absorbing the freight.

We quote 9 per cent Bessemer ferrosilicon at $54; 10 per cent, $55; 11 per cent, $58.30; 12 per cent, $61.60. We quote 6 per cent silvery iron, $41; 7 per cent, $43; 8 per cent, $45.50; 9 per cent, $47.50; 10 per cent, $50. Three dollars per gross ton advance for each 1 per cent silicon for 11 per cent and over. All the above prices are f.o.b. maker's furnace, Jackson or New Straitsville, Ohio, these furnaces having a uniform freight rate of $2.90 per gross ton, for delivery in the Pittsburgh district.

Structural Material.—Very little commercial work is coming out, nearly all new jobs being for the Government. The Pennsylvania Railroad has placed about 1200 tons of bridge work with independent fabricators, and the McClintic-Marshall Co. has taken 500 tons for a pier shed for the New York Dock Co. A commercial job in the market is 2000 tons for a foundry building for the Hooven-Owens-Rentschler Co. at Hamilton, Ohio, on which bids have been made. The American Bridge Co. has started to fabricate 50,000 tons or more of steel, for the Neville Island gun plant. We quote beams and channels up to 15 in. at 3c. at mill, Pittsburgh, for third quarter.

Iron and Steel Bars.—Sales managers of several local steel bar mills say they have received no official advices that implement makers are to have a concession of $5 per ton on shipments of soft steel bars over the last half of this year, but at the same time they say they believe the concession has been decided upon, and will be allowed. Output of steel bars, which for some time has not been over 60 to 70 per cent of normal, will be still further reduced by reason of the increased demands of the Government for shell steel. Nearly all the output is going into Government work. The demand for iron bars is not so active. We quote soft steel bars rolled from billets at 2.90c.; from old steel rails, 3c., and refined iron bars at 3.50c., at mill, Pittsburgh, for third quarter.

Sheets.—Operation of the sheet mills in the first half of August was 62.6 per cent, but is likely to be less in this half, as the supply of sheet bars is steadily getting less. One large Youngstown sheetmaker had its mills shut down for three weeks recently, having no bars on which to run, and this concern is a large maker of bars itself. The Government is buying sheets steadily, but has not placed any large orders lately. Mills are well sold up over the remainder of this year, mostly for Government work. Prices of sheets for this quarter are given on page 531.

Tin Plate.—Mills report they are still operating at from 90 to 95 per cent of capacity and believe they will be fully able to meet the heavy demands of the canners and meat packers for tin for food containers. They also expect to supply considerable demands of tin plate for our Allies. The immediate supply of pig tin is good, and prices are lower. We quote tin plate for third quarter at $7.75 per base box, made from Bessemer or open-hearth steel. Prices on terne plate are given on page 531.

Wire Products.—Inquiries have come out from the Government for 2100 tons of plain wire for shipment to France on which allocations are now being made to the mills, also for 56,000 tons of four point, black painted barbed wire, of which 22,000 tons is for France, and 34,000 tons for the United States War Department. No allocations have yet been made on this business, but they are expected shortly. Reports of 100,000 kegs of wire nails to be bought by the Government, of which 25,000 is said to have been already allocated, are not verified here. None of the local wire mills has received this inquiry and none has been asked to quote on it. As a result of the visit of Director of Steel Supply J. L. Replogle here last week, the supply of steel for the wire mills has been still further reduced. One large wire concern will have only enough steel to run its wire mills to 25 per cent of capacity. The Donora Steel plant of the American Steel & Wire Co., Donora, Pa., is being made ready to roll shell steel, but how much this will reduce output of the Donora wire mills is not known at this time. The Pittsburgh Steel Co. is turning out very large quantities of tube rounds for seamless tubes, and its wire mills at Monessen, Pa., are operating at a reduced rate. The heavy demands of the Government for shell steel, which will likely last until the end of the war, mean that the output of wire products may soon get down to about a 25 per cent basis, and that practically all of this will be needed for absolutely war essentials. Prospects of the jobbing trade getting nails or wire are very remote. One large buyer of plain wire has already been notified that he will not receive any more for a month or longer. Mills have almost no wire products to sell for the remainder of this year. Prices on wire products for third quarter are given on page 531.

Wire Rods.—The Government sent out an inquiry last week for 2600 tons of wire rods of crucible and spring rod quality. None of the local mills makes rods of this kind, and will not quote. A local mill received an order last week for 2000 tons of wire rods, to apply on a contract placed some time ago by the Government. Local mills have no rods to offer, as their output will soon be down to probably a 25 per cent basis. Prices on rods for this quarter are given on page 531.

Cotton Ties.—Rollings of cotton ties for this season will be completed in October or early November. One maker has reserved 20 per cent of its tonnage for last quarter, and will hold it until it is known what the price will be for the last three months. Cotton ties for August delivery are $1.94 and for September $1.95 per bundle of 45 lb. f.o.b. Pittsburgh.

Shafting.—For the remainder of this year, automobile makers are to turn out only 25 per cent of their entire product of pleasure cars in 1917, and this means a large loss in business to the shafting makers. None of the plants making shafting is running at more than 50 per cent of capacity. The new demand for small sizes is dull, but for sizes 2¼ in. and larger is active. For third quarter cold rolled shafting is 17 per cent off list in car loads, and 12 per cent in less than car loads, f.o.b. Pittsburgh.

Nuts and Bolts.—Present output of nuts and bolts is only about 75 per cent of normal due to scarcity of steel and labor, and nearly all of it is going to the Government. Makers believe prices on nuts and bolts for last quarter should be higher, as they claim labor is nearly double what it was a few months ago. Jobbers report demand heavy from the coal and other interests. Discounts for third quarter are given on page 531.

Rivets.—Nearly all new business is from the Government on direct or indirect orders. Last week the American Shipbuilding Co. placed 6500 tons of rivets with different makers, and other large Government inquiries are expected to come out in the next few days. Makers are sold up for some months, and very few rivets are available for the commercial trade. We quote buttonhead structural rivets at $4.40 and conehead boiler rivets at $4.50 per 100 lb.; small rivets, 50 and 10 per cent off list for third quarter, f.o.b. Pittsburgh.

Hoops and Bands.—Owing to shortage of steel, the output of hoops and bands is only about 50 to 60 per cent of normal. One maker with a capacity of 8000 tons per month, is turning out only about 4000 tons. Nearly all the hoops and bands being made are going to the Government, the demand for hoops for cooperage purposes is very active. We quote steel hoops and bands at 3.50c. per lb. base, f.o.b. Pittsburgh for third quarter. Extras and differentials in effect are given on pages 1357 and 1374 of THE IRON AGE of May 23 last.

Spikes.—The demand for standard spikes is quiet, but for small spikes is active from the coal interests.

Small spikes take class B2 and 3 rating, the same as light rails. The present output of standard spikes is less than 50 per cent of normal. We quote:

Standard sizes of railroad spikes 9/16 x 4½ in. and larger, $3.90 per 100 lb. in lots of 200 kegs of 200 lb. each, or in larger lots. Boat spikes, $5.25 per 100 lb., rack bolts, $4.90 base in lots of 200 kegs or more; less than 200 keg lots, $1 per 100 lb. extra. All f.o.b. Pittsburgh.

Hot Rolled Strip Steel.—This product is in Classes A, B and C, but nearly all shipments are to customers in Classes A and B, showing that the material is going into war essentials. Mills are operating to only about 60 per cent. We quote hot rolled strip steel at $3.50 per 100 lb. f.o.b. Pittsburgh for third quarter, 50c. additional being charged per 100 lb. for special stamping quality.

Cold Rolled Strip Steel.—Output at present is only about 50 per cent of capacity. This material is also in Classes A, B and C, and makers say that nearly all shipments are to customers having Classes A and B rating. The jobbers' demands are also being met, as it is necessary that their stocks be kept up, in order to meet the demand for quick shipment. We quote:

We quote cold-rolled strip steel at $6.50 per 100 lb. f.o.b. Pittsburgh, terms 30 days, less 2 per cent for cash in 10 days when sold in quantities of 300 lb. or more. Freight is allowed to destination when it does not exceed 31c. per 100 lb.

Skelp.—Output is being cut down more and more, owing to shortage in steel. Mills rolling iron and steel skelp are sold up for the remainder of this year.

We quote grooved skelp at $2.90; universal skelp, $3.15, and sheared skelp, $3.25 base. Special skelp for boiler tubes, etc., is $3.40 for base sizes and $3.55 for other sizes, all prices being per 100 lb. f.o.b. Pittsburgh.

Wrought Pipe.—The growing demands of the Government for shell steel will likely reduce the output of steel and iron pipe in the near future, as it is understood some of the pipe mills are making plans to roll shell steel, a result of the visit here last week of the director of steel supply. For some time the output of iron and steel pipe has been running from 85 to 90 per cent of capacity. Mills are sold up for months ahead, mostly on Government business. Jobbers report that their shipments this month from the mills have been very light, and the outlook for an increase in September is not very good. A good deal of pipe is still being shipped to France. Discounts on iron and steel pipe for this quarter are given on page 531.

Boiler Tubes.—Makers rolling seamless shell tubes are sold up for the next year or more, entirely on Government orders. The demand for iron and steel tubes has been abnormally heavy for a long time and mills are sold up for many months ahead. The demand for oil country goods has also been very heavy, the Government is encouraging the development of the oil fields, and needing a maximum output for war purposes. Discounts on iron and steel tubes for this quarter are given on page 531.

Coke.—The car supply is not so good as some time ago, and coke operators state that the Fuel Administration or the Railroad Administration should get busy and correct some of the evils that exist. It is claimed there are plenty of men to handle the empty cars and see that they are properly placed, but these men are lax and are not performing their work in the way they should. Many men in the coke region are earning so much money that they work only four or five days a week. The Government is still commandeering some coke and is taking any free coke available. No contracts are being made, as there is no incentive to do so. Blast furnaces are getting just enough to run on, but are not able to accumulate any stock coke. Output in the upper and lower Connellsville regions for the week ending Aug. 17 was 326,610 tons, an increase over the previous week of 7600 tons. We quote 48-hr. blast furnace coke at $6; 72-hr. foundry at $7, and crushed coke over ¾ in. at $7.30, all in net tons of 2000 lb. at oven.

Old Material.—W. Vernon Phillips, chairman of the Sub Committee on Scrap Iron and Steel, and the American Board of Scrap Dealers have taken up actively the matter of correcting the abuses that have crept into the trade in regard to the grading of heavy melting steel scrap and Class 2 C low phosphorus scrap. A strict regulation is that Class 2 C low phosphorus scrap can be purchased only by acid open-hearth furnaces, crucible or electric furnaces but it is claimed, and is probably true, that mills with only a very small output of acid steel, and some with no output at all, have bought very largely of the $34 grade, and it is for the purpose of stopping this practice that warnings have been issued. Dealers charge that scrap consumers are the guilty parties, offering the $34 price for material they knew was only heavy melting steel, while consumers say this was the only price at which melting scrap was being offered to them, and they had to pay the price to get any scrap at all. It seems likely that as a result of the investigation a number of contracts calling for "unguaranteed low phosphorus scrap" will be cancelled. A fair amount of scrap is moving from dealers to consumers, but the amount would be much larger if the scrap could be had. The Pennsylvania Railroad lists came out under date of Aug. 24, and are fairly heavy. Bids are to close on Sept. 3, and awards to be made on Sept. 6. It is probable most of this scrap will be bought direct by consumers as has been done for some time past. Most of the new demand is for heavy melting steel, borings and turnings and low phosphorus. Sales of these grades have been fairly heavy, all at maximum prices, plus the commission of 3½ per cent to dealers. We quote prices on iron and steel scrap for third quarter, plus the 3½ per cent commission, for delivery in Pittsburgh and other points that take Pittsburgh freights as follows:

Heavy steel melting scrap, Steubenville, Follansbee, Breckenridge, Monessen, Midland and Pittsburgh, delivered	$29.00
No. 1 cast scrap (for steel plants)	29.00
Rerolling rails, Newark and Cambridge, Ohio, Cumberland, Md., Franklin, Pa., and Pittsburgh	34.00
Hydraulic compressed steel scrap	29.00
Bundled sheet scrap, sides and ends f.o.b. consumer's mills, Pittsburgh, district	$27.50 to 29.00
Bundled sheet stamping scrap	22.00 to 23.00
No. 1 busheling scrap	28.00 to 29.00
Railroad grate bars	18.00 to 19.00
Low phosphorus melting stock (unguaranteed)	34.00
Low phosphorus melting stock (guaranteed)	36.50
Low phosphorus melting stock (bloom and billet ends heavy plates)	39.00
Iron car axles	46.00 to 46.50
Locomotive axles, steel	46.00 to 46.50
Steel car axles	46.00 to 46.50
Railroad malleable (for malleable works)	34.00
Machine shop turnings	19.00
Cast iron wheels	29.00
Rolled steel wheels	36.00
Sheet bar crop ends (at origin)	35.00
Cast iron borings	19.00
No. 1 railroad wrought scrap	34.00
Heavy steel axle turnings	24.00
Heavy breakable cast scrap	28.00 to 29.00

The Struthers Furnace Co., Cleveland, operating a blast furnace at Struthers, Ohio, has placed a contract with the Baker-Dunbar-Allen Co., Pittsburgh, for the erection of a new pump house and intake at the furnace. There are also being installed two 400-kw. Corliss engine units and two 500-hp. Rust water tube boilers. The company has also placed a contract with the Allis-Chalmers Mfg. Co. for the necessary machinery required for a slag crushing plant, which it will install this fall.

The Pittsburgh Metallurgical Co., Park Building, Pittsburgh, is operating an electric furnace at Montour Junction, on the P. & L. E. Railroad near Pittsburgh, in the manufacture of 25 to 30 per cent ferrosilicon. The product is sold by Eaton, Rhodes & Co., Oliver Building, Pittsburgh, and amounts to about 15 tons a day.

For the benefit of those visiting Washington on business with the Government, the Committee on Public Information, Fifteenth and G Streets, Washington, announces that its service bureau will give information on application as to officials, functions and location of all Government departments.

Chicago

CHICAGO, Aug. 26 (*By Wire*).

It is admitted that good work is being done by the mills under the Government system of requiring weekly reports as to what has been made, shipped, etc. Guided by the information so obtained, Government purchasing agencies are placing orders more equitably than was the case a few months ago. A leading plate maker has won praise from Washington for the shipments it has made against Government requirements.

From Washington comes word that orders for 15,000 tank cars placed last winter may be cancelled in view of the results obtained by pooling tank equipment. In the week, 25,000 tons of rails for next year have been declined because of the overloaded state of the rail mills. It is reported that 20,000 small freight cars have been ordered for the American Expeditionary Forces in France, making a total of 30,000 ordered, with 30,000 more in contemplation, or a grand total of 60,000. Railroad and war shop demands account for five fabricating jobs, one calling for 1400 tons.

There is but little disposition to discuss the $5 per ton reduction on bars given to the agricultural implement makers. The price to be given the implement trade on discs is still under discussion.

The jobbers are far from being out of their troubles, as while their orders are accepted under B-4 priority, there are many more pressing demands on the mills. Pacific Coast jobbers obtained verbal authorization for more generous shipments to them because of their isolation from the larger mills, but the order was rescinded. A mill protested that it would not give preference except where a written or printed order came from the proper authority, and subsequently an order came from the Priorities Committee that no jobber was to be favored because of geographical location. In the matter of galvanized sheets, the suggestion is made by a steel man that a jobber be selected in each leading city to carry a stock secured under a higher rating than now exists. The rub here would be in appeasing the jobbers not favored.

Pig iron is quiet with some selling for 1919. The problem in scrap is getting it to sell.

Pig Iron.—In respect to new features the market is colorless. "Buying movements" are impossible under existing conditions and such business as there is pursues a smooth routine course under Government regulation. For strictly war purposes, some additional iron is being sold for 1919 delivery and a great deal more could be placed were it available. A seller of Southern iron is disappointed in the small allotment made to him for next year's delivery, but looks for a more generous allowance. Deliveries appear to be proceeding at a satisfactory rate and with all the foundries busy, there is yet to be reported one which has actually had to shut down for lack of iron. The proximity of a shut down sometimes arouses a cry of distress, but the consumer gets material before his fear has materialized. The new furnace of the Steel & Tube Co. of America, built by the Mark Mfg. Co., one of its subsidiaries, went into blast Aug. 24 but at this time will add nothing to the merchant iron of the district, as its output will be needed in the company's manufacture of steel. The furnace is a 600-ton stack similar to the one completed for the Iroquois Iron Co. a few months ago.

The following quotations are for iron delivered at consumers' yards, except those for Northern foundry, malleable, steel-making irons, which are f.o.b. furnace, and do not include a switching charge averaging 50c. per ton:

Lake Superior charcoal, Nos. 2 to 5	$38.00
Lake Superior charcoal, No. 6 and Scotch	$39.50 to 41.00
Northern coke foundry, No. 1	33.50
Northern coke foundry, No. 2	33.00
Northern coke foundry, No. 3	32.50
Northern high-phosphorus foundry	33.00
Southern coke No. 1 foundry and No. 1 soft	39.50
Southern coke, No. 2 foundry	38.00
Malleable	33.50
Basic	32.00
Low phosphorus (copper free)	53.00
Silvery, 7 per cent	46.20

Ferroalloys.—The local producer of ferromanganese has been taking on additional business for the first half of next year; otherwise there is but little to report.

Plates.—The difficulty in securing plates for any purpose calls for no comment, except that the Government is more solicitious about its plate supply than that of any other material. Shipments from one local mill have been at such a good rate that a Washington bureau was incited to praise.

The official mill quotation is 3.25c., Pittsburgh, the freight to Chicago being 27c. per 100 lb. Jobbers who have stock quote 4.52c.

Structural Material.—Jobbers continue to encounter difficulties in renewing their stocks for the reason there are so many more pressing orders ahead of them. Railroad and war work fabricating jobs make a fairly good showing this week. Steel amounting to 803 tons required for the shops at Huntington, W. Va., and Richmond, Va., of the Chesapeake & Ohio Railroad is divided among the Richmond Structural Steel & Iron Works, the Fort Pitt Bridge Co., and the Central States Bridge Co. An unknown bidder will supply 286 tons for a monorail system in the shell forging plant of the Twin City Forge & Foundry Co., Stillwater, Minn. It is reported that Lewis Hall, Detroit, and the Central States Bridge Co., Indianapolis, have been awarded 1397 tons required for the new foundry building of the General Motors Corporation at Saginaw, Mich. The American Bridge Co. will fabricate 369 tons for four 100-foot turntables for the Wabash Railroad at Moberly, Mo., and the Milwaukee Bridge Co. will supply 208 tons for four 90-ft. standard turntables for the Minneapolis, St. Paul & Sault Ste. Marie Railroad. It is understood that 20,000 small freight cars have been ordered for the American Expeditionary Forces in France, making 30,000 ordered, and that 30,000 more are contemplated, making a total of 60,000.

The official mill quotation is 3c., Pittsburgh, which takes a freight rate of 27c. per 100 lb. for Chicago delivery. Jobbers quote 4.27c. for material out of warehouse.

Bars.—No one seems disposed to throw light on the $5 per ton reduction in the Government maximum for bars recently granted to implement makers. While not openly admitted, it is not denied, and the inference plainly meant to be conveyed is, "Better let the matter drop." The implement men, however, are feeling pretty good, and one states that "the steel people have been very considerate in their attitude." Some of the steel men say it has not been officially brought to their attention; others say they have not been approached with any proposition to sell at the reduced price. Others argue that the reduction is not fair, and that stirring up trouble with other consumers is something to be avoided. The demand for bar iron is much improved, the specifications filed this month being about double the volume of last month and considerably above production. It appears that the shortage of steel is at last making itself felt with the iron mills. The call is general in character, with the railroads taking their share. Makers of rail-carbon steel can not get enough rails to operate economically. They use discard shell steel when they can get it.

We quote, mill prices, mild steel bars at 2.90c., Pittsburgh, taking a freight rate to Chicago of 27c. per 100 lb. Bar iron is quoted at 3.50c., Chicago, and rail carbon at 3c., Chicago, a leading maker having adhered to Chicago as the basing point. Jobbers' prices follow:

Soft steel bars, 4.17c.; bar iron, 4.17c.; reinforcing bars, 4.17c., base. No extra charge for twisting ¾-in. and over; 2½c. for twisting ⅝, 11/16, ½ and 9/16; 5c. for 7/16 and ⅜; 10c. for 5/16 and 15c. per ¼-in. Extras as per card are charged for small sizes. Shafting, list plus 13 per cent.

Wire Products.—The manufacturers have been getting less steel than they could use, and they are by no means able to satisfy all of the demand. Their distribution is carefully regulated in accordance with Government rulings, pledges as to essential use being required from both jobber and dealer, and every inquiry is investigated. For prices see finished iron and steel, f.o.b. Pittsburgh, page 531.

Sheets.—The leading local independent is running about two-thirds of capacity in its sheet department as a result of the shortage in sheet bars. Many jobbers

are anxious to acquire stocks of galvanized sheets, but there is little chance for them under the B-4 rating which they now hold. It has been suggested by a manufacturer that instead of a multiplicity of stocks being replenished, a leading jobber be selected in each important city and made the source of supply, and a higher priority classification or rating be given to sheets, so these jobbers could acquire material. These selected jobbers, of course, would be governed by the usual pledges as to essential use. For mill prices see finished iron and steel f.o.b. Pittsburgh, page 531.

Chicago delivery out of stock regardless of quantity, No 10 blue annealed, 5.52c.; No. 28 black, 6.52c., and No. 28 galvanized, 7.77c.

Bolts and Nuts.—No new orders are booked without explicit information as to the character of the work for which bolts and nuts are required, and that work must be essential to secure delivery. Meanwhile the situation is steadily growing lighter because of the increased difficulty in obtaining raw material. To come sooner or later are large Government orders, which have been hanging fire some time. For mill prices, see finished iron and steel f.o.b. Pittsburgh. Jobbers quote:

Structural rivets, 5.67c.; boiler rivets, 5.77c.; machine bolts up to ⅝ x 4 in., 37½ per cent off; larger sizes 25 and 5 off; carriage bolts up to ⅝ x 6 in., 32½ off; larger sizes, 20 off; box pressed nuts, square, tapped, $1.05 off; hexagon tapped, 85c. per 100 lb.; coach or lag screws, gimlet points, square heads, 40 per cent off.

Old Material.—The greatest problem is not selling scrap but getting it to sell, heavy melting steel being especially scarce. The rolling mill grades are more active and cast continues to pick up. Prices are strong and the general trend is toward full Government maximums. Lists of moderate size have been issued by the Rock Island and C. B. & Q. railroads while the New York Central asks for bids on a blank list.

We quote for delivery in buyers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Old iron rails	$39.00
Relaying rails	$55.00 to 60.00
Old carwheels	29.00
Old steel rails, rerolling	34.00
Old steel rails, less than 5 ft	34.00
Heavy melting steel	29.00
Frogs, switches and guards, cut apart	29.00
Shoveling steel	29.00
Heavy steel axle turnings	24.00
Per Net Ton	
Iron angles and splice bars	$34.82
Iron arch bars and transoms	41.52
Steel angle bars	30.36
Iron car axles	41.52
Steel car axles	41.52
No. 1 railroad wrought	$29.75 to 30.36
No. 2 railroad wrought	28.25 to 28.75
Cut forge	28.25 to 28.75
Pipes and flues	24.50 to 25.00
No. 1 busheling	27.00 to 27.68
No. 2 busheling	18.50 to 19.00
Steel knuckles and couplers	30.36
Coil springs	30.36
No. 1 cast scrap	30.00 to 30.36
Boiler punchings	32.59
Locomotive tires, smooth	40.50 to 41.50
Machine-shop turnings	15.75 to 16.25
Cast borings	16.50 to 16.96
Stove plate and light cast scrap	25.50
Grate bars	25.50
Brake shoes	25.50
Railroad malleable	30.36
Agricultural malleable	29 00 to 30.00
Country mixed scrap	22.00 to 22.50

Rails and Track Supplies.—In the past few days, inquiry for about 25,000 tons of standard rails has been turned down because of the overbooked state of the rail mills. For light rails there is good and steady demand. We quote:

Standard railroad spikes, 4.11½c., Chicago. Track bolts, with square nuts, 5.11½c., Chicago. Tie plates, steel, 3.25c.; tie plates, iron, 3.75c.; f.o.b. maker's mill. The base for light rails is 3c. f.o.b. maker's mill for 25 to 45-lb. sections, lighter sections taking Government extras.

Cast-Iron Pipe.—Except for occasional Government work emanating from cantonments and naval training stations, the pipe shops are getting little new business. Many cities would like to buy if they were permitted to issue bonds, this being especially true of the Southwestern section of the country where towns have quickly outgrown their water facilities. Akron, Ohio, is a prospect in view of its having appropriated $2,000,000 for water works improvements, but there is no certainty that bonds will be authorized. Palmer, Neb., will take bids Aug. 30 on about 100 tons.

We quote per net ton f.o.b. Chicago ex-war tax as follows: Water pipe 4-in., $64.80; 6-in. and larger, $61.80. Class A and gas pipe $1 extra.

Buffalo

BUFFALO, Aug. 26.

Pig Iron.—Pressure for iron continues on the part of consumers, but very few producers are taking on anything except allocated orders. Some tonnage for the latter part of first half of next year for strictly Government work is reported as having been placed on the books of one or two furnaces, however. The district representative of the Government allocating board has allotments aggregating 30,000 tons ready to place with the furnaces of the district this week to cover urgent requirements for immediate and early delivery, consisting largely of basic, but including some other grades. Some furnaces report a lack of a full measure of coke supply, attributable to some extent to shortage of cars and of labor, and the outlook for relief in that respect is not overpromising. We continue the Government price schedule, f.o.b. furnace, Buffalo:

No. 1 foundry, 2.75 to 3.25 silicon	$34.50
No. 2 X, 2.25 to 2.75 silicon	33.50
No. 3 foundry, 1.75 to 2.25 silicon	32.50
Gray forge	32.00
Malleable	33 50
Basic	32.00
Lake Superior charcoal, regular grades, f.o.b. Buffalo	37.50

Old Material.—The market shows a continued strong demand in all lines of scrap materials. The recent announcement of the recognition on the part of the Sub-Committee on Scrap Iron and Steel of the evils that have arisen from the practice on the part of dealers of assorting supplies and selecting and selling the better grades under the head of "unguaranteed low phosphorus" at a price higher than $29 to certain mills is causing favorable comment among consumers, and the suppressing of the practice will, it is thought, have the effect of assuring a better supply of heavy melting steel, an attainment very much to be desired. It is now expected that the unsatisfactory results inflicted on open-hearth furnaces arising from the practice of allowing electric furnaces to pay more than $29 for low phosphorus and preventing open-hearth interests from paying more than that price will be done away with. We continue the current price schedule, which is as follows, per gross ton, f.o.b. Buffalo:

Heavy melting steel	$29.00
No. 1 low phosphorus, heavy, 0.04 and under	39.00
Low phosphorus, 0.04 and under	36 50
Low phosphorus, not guaranteed	34.00
No. 1 railroad wrought	34.00
No. 1 railroad and machinery cast	34.00
Iron axles	$44.00 to 46.00
Steel axles	44.00 to 46.00
Carwheels	29.00
Railroad malleable	34.00
Machine shop turnings	17.00 to 17.50
Heavy axle turnings	24 00
Clean cast borings	18.00 to 19.00
Iron rails	36.00 to 37.00
Locomotive grate bars	27.50 to 28.00
Stove plate	27.50 to 28.00
Wrought pipe	27.00 to 28.00
No. 1 busheling scrap	29 00 to 30.00
No. 2 busheling scrap	21.00 to 23.00
Bundled sheet stamping scrap	21.00 to 23.00

Finished Iron and Steel.—Nothing to sell except for strictly Government requirements is the purport of all replies to inquiries to place orders in finished product lines. The expanding Government program requiring larger tonnages of steel than expected is causing the drawing in of the lines more and more tightly on everything except Government necessities, and in consequence mills will undoubtedly have to curtail on class C shipments as well as eliminate entirely class D shipments. Very heavy business has been handled during the week for war supplies, including some railroad equipment for account of the Government, and there is a continuance of placing of important Government contracts. Bids are being taken this week for 300

tons of reinforcing bars for a 5-story and basement concrete warehouse and factory which Armour & Co., Chicago, will erect as an addition to their Buffalo plant.

Birmingham

BIRMINGHAM, ALA., Aug. 26.

Pig Iron.—Outside of low-grade iron, in which certain freedom of action is allowed, Government allocations come very near usurping the entire Alabama make. In one batch of allocations received during the past week, there was a total of 4500 tons ranging from a few cars up to 750 tons and scattered over Iowa, Wisconsin, Illinois, South Carolina, North Carolina, Texas, Pacific Coast, Pennsylvania and other states. These allocations attest congestion in other furnace centers and include consumers never before using Alabama iron. Firms having their contracted iron cut off because engaged upon non-essential work are reappearing and will get the metal contracted for since getting on the war basis, but they will not get tonnage on cancelled contracts because that metal has already gone to war essential plants. One interest cancelled orders for 50,000 tons during the past two months and others in proportion. Non-essential plants are no longer considered in the game. An interesting circular letter was received by the trade during the week which showed that the plants of the United States Cast Iron Pipe & Foundry Co. were from 93 to 98 per cent on preferential work. Some larger machine shops in the district have more war work than they can turn out. The Alabama Co. is going ahead with its English basic iron at a Gadsden stack and is making a very satisfactory turn-out of low phosphorus and high manganese iron at Ironton, for which it averages $33.75 per ton. We quote per gross ton f.o.b. Birmingham district furnaces as follows:

No. 2 foundry and soft	$33.00
Basic	32.00

Old Material.—After several weeks of effort on their part to raise the scale of prices paid in the South nearer the Government maximum, the Birmingham scrap dealers had succeeded by last Saturday in inducing a number of Middle West consumers to come to Birmingham and tentatively place options on local scrap. The condition aimed at as a basis for bringing this business to a head is the allowance by the Government of a freight differential to such plants as are on war work as will enable them to compete with the Birmingham district consumers. The Government, through the scrap committee of the American Iron and Steel Institute it is also hoped will allow the fixing of a price f.o.b. dealers' yards instead of consumers' yards in war work instances. If these allowances are made, scrap dealers believe business will pick up and they will come much nearer getting the Government maximums instead of the present schedule, which is controlled by the district consumers with their freight rate advantage. Scrap dealers report cost of collecting scrap as 50 to 75 per cent higher owing to the higher price paid for farm labor and insist that a higher price at the selling end must be had to stimulate the business. Much depends upon the action of the Government. Heavy melting steel has felt the stimulus of the dealers' efforts and is quoted $2 higher. Old steel rails and stove plate also range higher. We quote per gross ton f.o.b. Birmingham district yards as follows:

Old steel axles	$35.00 to $36.00
Old steel rails	28.00 to 28.50
Heavy melting steel	25.50 to 26.50
No. 1 railroad wrought	28.00 to 30.00
No. 1 cast	27.50 to 28.50
Old carwheels	29.00 to 29.50
Tramcar wheels	26.00 to 26.50
Machine shop turnings	15.00 to 16.00
Cast-iron borings	15.00 to 16.00
Stove plate	23.00 to 23.50

Cast-Iron Pipe.—Water pipe plants and sanitary ones as well continue operating on castings for war work, cast iron target shells and pipe largely for cantonment and industrial plant purposes. The new municipal business is of a scattering nature.

Coal and Coke.—H. C. Selheimer, Birmingham district's new coal production manager, forecasts an impetus in coal output under the co-operative system. He believes it will work well in Alabama. The negro miners have caught the war spirit in a commendable degree, organizing patriotic work societies at the various collieries under their own race leadership. The Alabama output still lags below the maximum of 433,000 tons of some weeks ago, having fallen to 411,000, but a better output is expected from now on. The coke output is still far below the requirements, although almost up to last year's.

St. Louis

ST. LOUIS, Aug. 26.

Pig Iron.—Permission has been given to a number of furnace representatives to offer, for 1919 delivery, a restricted tonnage for use in work directly or indirectly related to war production and this has brought out calls from consumers for considerably more than the total which can be allotted. The restrictions as to the character of concerns to which the iron may be sold are causing considerable difficulty, for while the iron may be sold only to old customers—under no circumstances to new ones—it so happens that the best customers of some of the representatives of furnaces are not now engaged on war work, directly or indirectly, and therefore will have to be turned down. This situation affects a considerable number of the stove plants particularly.

Finished Iron and Steel.—The direct mill representatives are doing no business at all. For stock out of warehouse we quote as follows:

Soft steel bars, 4.24c.; iron bars, 4.24c.; structural material, 4.34c.; tank plates, 4.59c.; No. 8 sheets, 5.54c.; No. 10 blue annealed sheets, 5.59c.; No. 28 black sheets, cold rolled, one pass, 6.59c.; No. 28 galvanized sheets, black sheet gage, 7.84c.

Old Material.—The dealers are doing a little business as conditions permit, but the supplies are short and the offerings from the railroads and elsewhere are very light, because of the actual lack of material, as well as the shortage of labor to pick up what may be available. Most of the business being done is on the basis of Government prices with the commission allowance. The consuming interests are in need of material and would buy considerable tonnages if it were available. No change has taken place in the switching situation as to rates across the river within the St. Louis industrial district and this is helping to prevent other than immediate business. We quote dealers' prices, f.o.b. customers' works, St. Louis industrial district as follows:

Per Gross Ton	
Old iron rails	$37.00 to $37.50
Old steel rails, rerolling	33.50 to 34.00
Old steel rails, less than 3 ft	31.00 to 31.50
Relaying rails, standard sections, subject to inspection	55.00 to 65.00
Old carwheels	28.50 to 29.00
No. 1 railroad heavy melting steel scrap	28.50 to 29.00
Heavy shoveling steel	27.00 to 27.50
Ordinary shoveling steel	26.50 to 27.00
Frogs, switches and guards, cut apart	28.50 to 29.00
Ordinary bundled sheet scrap	23.00 to 23.50
Heavy axle and tire turnings	20.50 to 21.00
Per Net Ton	
Iron angle bars	$33.00 to $33.50
Steel angle bars	27.00 to 27.50
Iron car axles	40.00 to 40.50
Steel car axles	40.00 to 40.50
Wrought arch bars and transoms	40.00 to 40.50
No. 1 railroad wrought	28.50 to 29.00
No. 2 railroad wrought	27.50 to 28.00
Railroad springs	29.50 to 30.00
Steel couplers and knuckles	29.50 to 30.00
Locomotive tires, 42 in. and over smooth inside	27.00 to 27.50
No. 1 dealers' forge	26.00 to 26.50
Cast-iron borings	16.25 to 16.75
No. 1 busheling	25.50 to 26.00
No. 1 boilers cut to sheets and rings	22.50 to 23.00
No. 1 railroad cast scrap	28.00 to 28.50
Stove plate and light cast scrap	23.00 to 23.50
Railroad malleable	26.00 to 26.50
Agricultural malleable	25.00 to 25.50
Pipes and flues	23.00 to 23.50
Heavy railroad sheet and tank scrap	22.50 to 23.00
Railroad grate bars	20.00 to 20.50
Machine shop trimmings	16.00 to 16.50
Country mixed scrap	19.50 to 20.00
Uncut railroad mixed scrap	23.50 to 24.00

Philadelphia

PHILADELPHIA, Aug. 27.

Reports to the War Industries Board on plate production for the week ended Aug. 17 showed a total of 117,000 net tons, which is the largest output for one week in the history of the American steel industry. This makes the yearly rated capacity of the plate mills of the country 6,084,000 tons. The record is all the more surprising in view of the fact that temperatures were very high during the greater part of that week.

The scrap situation seems to be verging toward a serious shortage this fall and winter and steps will soon be taken to inaugurate a nation-wide scrap-saving campaign in which the services of the American Red Cross and the Boy Scouts of America will be enlisted.

The Baldwin Locomotive Works, Philadelphia, has come into the market for a vast quantity of equipment for a new locomotive plant in Chicago.

Pig Iron.—There have been a few allocations to furnaces in this district and some selling of foundry iron by one interest for next year, but otherwise pig iron offices are concerned mostly with facilitating shipments and selling odd lots of off-grade iron. There are reports of a great shortage of iron, such reports being based on estimated requirements compiled by the War Industries Board, but the trade here has little definite information. England, France and Italy are known to have requested large tonnages of basic iron, but whether their requests will be granted in full is not evidenced by any inquiries or allocations which have come to furnaces in this district. We quote standard grades of iron f.o.b. furnace, except Virginia iron, for which delivered prices are quoted:

Eastern Pennsylvania No. 1 X	$34.00
Eastern Pennsylvania No. 2 X	33.50
Eastern Pennsylvania No. 2 foundry	33.00
Virginia No. 2 X (including freight)	37.60
Virginia No. 2 foundry (including freight)	37.10
Basic	32.00
Gray forge	32.00
Bessemer	35.20
Standard low phosphorus	53.00
Low phosphorus (copper bearings)	50.00

Ferroalloys.—Ferromanganese and spiegeleisen are not in great demand, but prices remain firm at $250, delivered, for 70 per cent ferromanganese and $75, f.o.b. furnace, for 16 to 18 per cent spiegeleisen. A meeting is to be held in New York this week to discuss the manganese and chrome ore situation. Brazilian manganese ore has sold recently at $1.35 per unit, and although no prices have been fixed by the War Industries Board except on domestic ores, $1.35 appears to be the maximum that the furnaces will pay. It is significant that on a recent small offering of Brazilian manganese ore there were four bidders and all bid the same price, namely, $1.35. The maximum price for the domestic ore is $1.30 per unit for 54 per cent and over, with certain penalties for silica and phosphorus.

Coke.—We quote Connellsville coke at $6 for blast furnace grade and $7 for foundry grade at ovens.

Billets.—Open-hearth rerolling billets are $51.30, Philadelphia.

Old Material.—Scrap dealers and consumers who commit intentional or unintentional violations of the regulations affecting sales of old material are finding out that the Sub-Committee on Scrap Iron and Steel of the American Iron and Steel Institute has almost unlimited power to enforce its decisions. At least two small scrap dealers who persistently violated regulations have been put out of business. In one case a dealer was found guilty of "doctoring" cars and was refused railroad permits. He began trading under another name and continued his illegitimate practices, with the result that his local dealer's license was taken away from him. The sub-committee has overlooked small transgressions on the part of consumers which were obviously the result of lack of information, but such violations as the purchase of low phosphorus material for use in basic open-hearth furnaces, which has called forth a letter to consumers from Chairman Phillips of the sub-committee, will be sternly reproved, and, if repeated, will undoubtedly result in more effective measures. It has developed that a few dealers have attempted to use for their own profit permits granted to consumers for the payment of freight differentials. If a Pittsburgh consumer receives a permit to bring borings and turnings from Chicago, and the broker representing him buys that material in Chicago at, say, $17, the broker will not be permitted to sell it to the Pittsburgh consumer at the maximum, $19, and at the same time recover the freight differential. The sub-committee is issuing permits only in extreme cases to help out consumers, and it is watching for attempts on the part of dealers or brokers to make a profit on such permits. A number of rolling mills have now been helped out with shipments of borings and turnings under the embargo order of the institute general committee. In cases where dealers had already bought borings and turnings at $19, delivered, permits are being granted to rolling mills and steel plants to pay the freight differential, if there be any. Plans are being worked out by the Sub-Committee on Scrap Iron and Steel and the War Industries Board for a nation-wide scrap-saving campaign, by which it is hoped to avert, partly at least, the serious scrap shortage which threatens to develop this fall and winter. The American Red Cross and the Boy Scouts of America will probably be called upon to assist in the campaign. The country will be organized by districts and central depots for collecting old material will be designated. Chairman Phillips of the scrap sub-committee has received a telegram from the United States Employment Service stating that the announcement of the Community Labor Board of the District of Columbia classifying junk men as non-essentials is purely a local matter, and that it would not be the policy of the Employment Service to consider men engaged in collecting scrap as non-essential. The significance of the District of Columbia board's action, if it became general, is that in some sections the large dealers and brokers are officially classified as junk men. Scrap dealers here say they are finding it increasingly difficult to do business at a profit because their volume is shrinking to the point where profits and expenses almost meet. It is almost impossible to locate good-sized tonnages of scrap. We quote the following prices for delivery at buyers' yards, eastern Pennsylvania:

No. 1 heavy melting steel	$29.00
Steel rails, rerolling	34.00
No. 1 low phosphorus heavy, 0.04 and under	39.00
Low phosphorus, 0.04 and under	36.50
Low phosphorus, 0.06 and under	$32.00 to 34.00
Old iron rails	39.00
Old carwheels	29.00
No. 1 railroad wrought	34.00
No. 1 yard wrought	33.00
Country yard wrought	29.00
No. 1 forge fire	$28.00 to 29.00
Bundled skeleton	28.00 to 29.00
No. 1 busheling	31.00
No. 2 busheling	17.00 to 18.00
Turnings (for blast furnace use)	18.50 to 19.00
Machine-shop turnings (for rolling mill use)	18.50 to 19.00
Cast borings (for blast furnace use)	18.50 to 19.00
Cast borings (clean)	19.00
No. 1 cast (for steel plant use)	29.00
No. 1 cast (cupola sizes)	34.00
Grate bars	27.50 to 28.50
Stove plate	28.00 to 29.00
Railroad malleable (for steel plants)	29.00
Railroad malleable (for malleable works)	34.00
Wrought iron and soft steel pipes and tubes (new specifications)	33.00
Ungraded pipe	29.00

Finished Iron and Steel.—Plate production reached its highest point the week ended Aug. 17, when a total of 117,000 net tons was produced in the plate mills of the country, according to information which has reached the steel trade here. This gives the plate mills a rated annual capacity of 6,084,000 net tons. Another large lot of plates and shapes for Japan, totaling 130,000 tons, is being allocated by the steel distribution committee of the American Iron and Steel Institute. This steel is for the 30 ships which are to be built in Japanese shipyards for the United States Shipping Board. It is understood that this business is to be booked at the Government price, having no relation to

the high-priced contracts which the Japanese made in this country over a year ago. Plates for the British War Mission are also being allocated. The aggregate of this lot is not known here, but one mill has agreed to take 5000 tons. Under their automatic priority rating of B-4, jobbers are finding it more difficult to get steel than they anticipated. Even in sheets the situation is becoming more difficult for the jobber. A nearby mill rolling heavy blue annealed sheets is filled up with direct Government and preferential orders until early next year. We quote plates at 3.48c.; structural material at 3.23c.; soft steel bars at 3.13c.; bar iron, 3.73c.; No. 10 blue annealed sheets, 4.48c.; No. 28 black sheets, 5.23c., and No. 28 galvanized, 6.48c., all Philadelphia.

New York

NEW YORK, Aug. 27.

Pig Iron.—There are numerous inquiries for first half iron, but makers, with the exception of two eastern Pennsylvania furnaces, are not selling for that period. One of the fair-sized inquiries in the market is for 3000 tons of malleable iron for first half from Stanley G. Flagg & Co., Philadelphia. We quote prices as follows for tidewater delivery on Northern and Southern grades:

No. 1 X	$35.40
No. 2 X	34.00
No. 2 plain	33.90
No. 2 X Virginia	37.90
No. 1 Southern (all rail)	42.20
No. 2 Southern (all rail)	40.70

Finished Iron and Steel.—The 20,000 cars for overseas service, noted last week in this column as having been bought by the Government, have been allocated, as noted elsewhere in this issue. These are standard-gage cars, and 4000 narrow-gage cars are about to be added to the list. A large expansion of railroad facilities for the American Expeditionary Forces is planned for, but no further estimate of the number of cars still to be considered is regarded as a matter of present importance, for the steel rail and shell steel requirements of the immediate future are so great that steel would not be available for car construction for some time. There is some likelihood that some of the cars ordered for use in France will displace part of the car order for the United States railroads. Incidentally, only last week were the final details of these cars settled, though this fact did not interfere materially with the manufacturing procedure on these cars. The immediate increase of shell steel demand is indicated in an allocation about to be made for 140,000 tons of 82-mm. shell bars. Further to swell the demand on our steel-producing capacity is an arrangement which has been effected with 14 yards in Japan by the Emergency Fleet Corporation to build some 50 ships. Most, if not all, of these yards have got to be modified for steel ship construction or extended; and besides 122,500 tons of plates and shapes needed on this account, the engine and boiler capacity must be obtained in the United States, as well as cranes, and also steel rails for the yards. The material for these ships and yards is to be delivered to the Pacific Coast and from that point the Japanese yards are to provide for the transportation. For ship construction arranged for some months ago in China, fabricated steel for plant extensions must yet be provided. There is a rumor that at least a part of the steel plates which were rolled a few weeks ago for Japan against long-existing contracts will be put through on the Government price; this is regarded as not unlikely where the plates are sent to yards from which United States vessels are to be obtained. The 2600 net tons of car wheel tires for France and the 2650 tires for the Italian State Railways have apparently not yet been placed. We quote mill shipments as follows: Steel bars, 3.145c.; shapes, 3.245c.; plates, 3.495c.; and bar iron, 3.745c., all New York. Out-of-store prices are 1c. higher.

Cast-Iron Pipe.—The market is without feature. Government prices, including the new freight rates, are as follows: $61.75, New York, for 6-in. and heavier; and $64.75 for 4-in.; $71.75 for 3-in., with $1 additional for Class A and gas pipe.

Old Material.—Maximum prices are being offered by dealers and brokers for all old material. Dealers say they know of fair-sized tonnages which are not being brought to market because of labor shortage. It is suggested that the United States Employment Service should be asked to consider the problem of scrap yards in procuring labor. Much material could be shipped, it is stated, if men were furnished for loading the scrap on cars and sorting it in scrap yards. Dealers do not believe that the 30-day embargo on shipment of borings and turnings to blast furnaces, except those making low-phosphorus iron, will solve the question permanently for rolling mills. A suggestion is that a price differential be established on borings and turnings for blast-furnace use, the idea being that material for blast furnaces should sell a dollar or two under that for rolling mill and open-hearth furnace use. Under such an arrangement, however, open-hearth furnaces would probably take the bulk of the material and rolling mills would still find themselves short of scrap. We quote buying prices of dealers and brokers per gross ton New York as follows:

Heavy melting steel	$26.20
Rerolling rails	30.80
Relaying rails	$60.00 to 70.00
Iron and steel car axles	43.70
No. 1 railroad wrought	30.80
No. 1 railroad wrought, cut to not less than 10 in. or over 24 in.	35.80
Wrought-iron track scrap	28.80
Forge fire	25.00 to 25.50
No. 1 yard wrought, long	29.80
Light iron	10.00 to 11.00
Cast borings (clean)	16 25 to 16.50
Machine-shop turnings	16.25 to 16.50
Mixed borings and turnings	16.25 to 16.50
Iron and steel pipe (1 in. minimum diameter), not under 2 ft. long	29.80
Stove plate	26.20
Locomotive grate bars	26.20
Malleable cast (railroad)	31.20
Old carwheels	26.20

Prices which dealers in New York and Brooklyn are quoting to local foundries, per gross ton, are:

No. 1 machinery cast	$34.00
No. 1 heavy cast (columns, building materials, etc.), cupola size	34.00
No. 1 heavy cast, not cupola size	29.00
No. 1 cast (radiators, cast boilers, etc.)	29.00

Ferroalloys.—As indicated on another page, the feature of the ferromanganese market is the proposition of the War Industries Board to limit the number of blast furnaces making ferromanganese and turn some of them over to making pig iron, at the same time encouraging the electrolytic manufacture of ferromanganese. Domestic output continues large. The blast-furnace reports of THE IRON AGE for July showed 31,400 gross tons made in that month, the second largest output ever recorded, that for May having been 35,790 tons. In general the market is quiet and firm at $250, delivered, for 70 per cent alloy with $4 per unit added or deducted for variations from this standard. Sales in the past week have not been large but there has been a fair volume of small lots for delivery this year and next. One consumer is inquiring for 1500 tons for the first half of 1919 and another for 600 tons for the last quarter of this year and the first quarter of next. Spiegeleisen is also quiet and firm at $75, furnace, for 16 per cent alloy plus $3.50 per unit above this level. One consumer will take 2500 tons for delivery in 1919 and there are other smaller inquiries. Production of spiegeleisen in July, according to the blast-furnace reports of THE IRON AGE, was 20,362 tons. This is the largest output for any month this year, the next largest having been 17,844 tons in May. The ferrosilicon market is quiet and unchanged at $152.50 per ton for 50 per cent on contracts involving several hundred tons, $157.50 on 100-ton lots and $162.50 on carloads. There is still a lack of interest in contracting for 1919.

The Germann Bronze Co., Erie, Pa., makers of brass, bronze, copper, aluminum and lead castings, is erecting a one-story steel and brick building, to be used as an addition to its die casting department.

British Steel Market

Cast Iron Scrap Placed Under Control—Large Demand for Tin Plates

(*By Cable*)

LONDON, ENGLAND, Aug. 28.

General conditions are unaltered. Demand for pig iron is unabated with labor and fuel conditions very difficult. Tin plates are wanted in quantities and orders for neutrals are hard to arrange. The ferromanganese market is quieter. Cast-iron scrap has been declared a war material and placed under control, with prices fixed at 95s. for heavy ordinary cast scrap, at £5 for heavy machinery scrap, at 85s. for light cast scrap and at 65s. for turnings and borings, all free on track. Current quotations on various products are as follows:

Tin plate, coke, 14 x 20; 112 sheets, 108 lb., f.o.b. Wales, 33s. 6d.
Ferromanganese, $260 to $265, c.i.f. for export to America; £26 10s. for British consumption.
On other products control prices per gross ton are:
Hematite pig iron, East Coast, £6 2s. 6d.; West Coast, £6 7s. 6d.
Cleveland pig iron (export), £5 5s. for No. 1 and £6 6s. for basic. Domestic prices, 6s. below these figures.
Steel plates, ship, bridge and tank, £11 10s .to £17, according to size.
S. M. boiler plates, basis £12 10s.
Bar iron, standard quality, basis £14 15s.; marked £17, net.
Sheet and tin plate bars, £10 7s. 6d.
Blooms and billets for rerolling (ordinary), £10 7s. 6d.; special quality, £11.
Wire rods, £21 10s. net, basis.

Scarcity of Coke—Stringency in Finished Iron and Steel—Ferromanganese Exports Limited

(*By Mail.*)

LONDON, ENGLAND, July 30.—The advance, already cabled, of 5s. per ton in the export terms for Cleveland foundry and basic iron to 119s. f.o b. retrospective from March 31, while makers were also authorized to claim an additional 1s. per ton on all their export deliveries from Dec. 1 last year to March 31, is the only important development. This had, however, nothing to do with the recent increase in the price of coal, owing to which an adjustment of the home trade maxima is still awaited anxiously. The protracted delay of an official announcement or of some subsidy to compensate producers for increased costs has kept the trade unsettled. The whole industry is affected by raw material uncertainties, and the difficult labor conditions. The serious disturbances in connection with the strike of munition workers have been averted owing to prompt government action.

The scarcity of coke is hindering Midland ironmasters, and causing apprehension among consumers, while offers are more restricted. The position of pig iron is very firm, although new business in Cleveland iron has slackened over the end of the month. The output in that district seems satisfactory notwithstanding the irregularity of the coke supply. Deliveries against the July allocations will undoubtedly be short owing to the lack of labor to lift iron from stock, which is the more regrettable because of better truck accommodation. Scottish users, however, seem fairly well situated. Business in forge iron hangs fire, consumers being well stocked except in special brands. Exports to France continue good, but clearances to Italy are poor, while a little iron has been sanctioned for neutrals. There is a heavy demand for hematite, and deliveries to home users and for France are satisfactory, but merchant trading for Italy is still interrupted pending further developments on the representations made to the authorities.

Outside of the regular large allocations of semi-finished steel for essential use, very little material is obtainable except where high priority permits are forthcoming. Some difficulty may be experienced in keeping output at the recent high rate, but the supply seems ample, and comparatively easy conditions prevail in certain districts, although there is no prospect of getting American material shipped for merchant use.

Undimished stringency prevails in finished iron and steel, the mills all around being faced with a heavy accumulation of war work, which is expected to keep them going at full pressure for an indefinite period. What with labor and fuel shortcomings and the irregularity of the deliveries of raw material, Midland manufacturers are in many cases rather seriously hindered in the execution of their contracts. New large demands are coming forward, but there is very little to be picked up for near delivery. Some of the bar iron makers are entirely out of the market, and business in standard qualities at current controlled prices is more difficult. Under the rigid control of wide products merchant orders can hardly be placed. Uncontrolled material is a difficult market, not much being obtainable at the widely divergent prices on either side of £18 for mild steel bars and steel hoops, net, delivered to home consumers. Export terms are chiefly nominal at fully £2 more per ton f.o.b.

The outlook in the Welsh tin-plate industry does not permit of freedom in booking new orders. Makers are already saddled with contracts that will require all their attention the next two or three months. Within the last fortnight the market's absorbing capacity has been pretty well exhausted. The last big French order for over 200,000 boxes could only be completed by an extension of deliveries into October, and the scarcity of offers is now already beginning to tell on that month. Very few works seem disposed to commit themselves over that month, even on full terms, equal to-day to 33s. 7½d. per basis box cokes 20 x 14 net at makers' works. The placing of orders except for Class A work is out of question. Working conditions are more complicated owing to labor restrictions.

Export business in ferromanganese continues limited under the embargo, but the tone seems firm. Only a few small orders have been booked for Canada, and current quotations for North Atlantic ports stand at $260 to $270 c.i.f. License restrictions keep Continental business in narrow compass at about £55 to £60 f.o.b. for loose.

Cincinnati

CINCINNATI, Aug. 27—(*By Wire*).

Pig Iron.—Inroads have been made on the output of foundry iron, both in the South and in southern Ohio, by the allocation of basic tonnages to different furnaces that were producing foundry iron. This is given as one reason why the furnaces in the South have not formally opened their books for first-half business. A considerable tonnage of Southern foundry iron has been sold, but some of this was refused by the furnace operators pending more definite instructions from Washington as to whom the iron should be shipped. Some foundry iron can be obtained in the Birmingham district and also in southern Ohio, but no melter not on the essential list can get a ton. Stovemakers are inclined to think that selling agencies have drawn the line a little too tight as far as they are concerned and most of them are trying to obtain war work that will enable them to get a supply of iron and coke. Order books have been very much disarranged because of instructions from Washington to produce iron that furnaces were not turning out. In the South some furnaces have been directed to make high silicon iron and others there are already now on basic. Malleable is in urgent demand, and the shortage is becoming more acute. Speculation as to any changes in quotations for the last quarter are about at an end and it is generally thought that none will be made. The increased cost of production has caused a number of Southern furnaces to feel somewhat anxious about the future.

Based on freight rates of $3.60 from Birmingham and $1.50 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, No. 2 foundry and No. 2 soft	$36.60
Southern Ohio, No. 2	34.50
Basic, Northern	33.50

Coke.—Although some relief was reported last week, the situation now appears to be tightening, and there is no coke to be had for prompt shipment, with the exception of an occasional carload. Contracting for foundry coke is becoming more limited, and users are

depending mostly on Government aid in securing a future supply. Those concerns not engaged in essential work have practically no chance, according to the present outlook, of securing any fuel for future operations. Shipments are moving somewhat better, and reports from all producing districts indicate that the labor situation has improved considerably since the recent hot weather. Stricter regulations in the distribution of domestic coke are now being enforced.

Finished Material.—The demand for all kinds of finished steel is growing rapidly, and jobbers' stocks are being depleted at a fast rate. No improvement in shipments from the mills is reported from any source, and there is a great deal of shopping around done by buyers in other territories. Lately some material was shipped from local stocks on urgent orders from concerns in the East having war contracts. If stocks are drawn on at the same rate for any length of time they will practically be exhausted unless some relief is afforded by the mills. Iron bars can be had for fairly prompt shipment, and these are being substituted for steel bars that are hard to get. Galvanized sheets cannot be obtained except for essential war work, and for this reason the sheet-metal contractors whose stocks are running low are curtailing their operations materially.

The following are local jobbers' prices: Steel bars and small structural shapes, 4.13c. base; large rounds and squares 2 in. and over, 4.23c. base; plates, 4.48c. base; No. 10 blue annealed sheets, 5.48c.; steel bands, 3/16 in. and lighter, 4.98c. base (using the new band list). Reinforcing concrete bars, 4.23c., and wire nails, $4.25 to $4.50 per keg base.

Old Material.—There is a very heavy demand for scrap, especially that needed by the steel mills. No. 1 machine cast is also wanted, and local and near-by foundries have lately bought all they could get. The maximum price of $34 per gross ton delivered at consumers' plants rules in all transactions made lately, but there are no reports out that commissions have been paid on any transactions. The supply of scrap of all kinds is running low, and yard stocks are diminishing at a steady rate.

	Per Gross Ton	
Bundled sheet scrap	$21.50 to	$32.50
Old iron rails	33.50 to	34.00
Relaying rails, 50 lb. and up	44.50 to	45.00
Rerolling steel rails	32.00 to	32.50
Heavy melting steel scrap	27.50 to	28.00
Steel rails for melting	27.50 to	28.00
Old carwheels	29.00 to	29.50
	Per Net Ton	
No. 1 railroad wrought	$29.50 to	$30.00
Cast borings	13.50 to	14.00
Steel turnings	14.50 to	15.00
Railroad cast	25.00 to	25.50
No. 1 machinery	29.50 to	30.00
Burnt scrap	17.50 to	18.00
Iron axles	40.00 to	40.50
Locomotive tires (smooth inside)	35.50 to	36.00
Pipes and flues	21.00 to	21.50
Malleable cast	24.50 to	25.00
Railroad tank and sheet	18.50 to	19.00

Cleveland

CLEVELAND, Aug. 27.

Iron Ore.—The demands of the Lake Michigan grain trade and the coal trade have grown heavier and have resulted in a further let-up in the movement of ore. Wild ore cargoes are being offered more freely, but with the large number of boats diverted to grain, offerings of tonnage are light and little chartering is being done. Coal shipments last week were the heaviest of the season and will continue in heavy volume the remainder of the season. With the Lake Superior grain movement the Lake fleet will have about all it can do the remainder of the season. However, ore shippers are well up on their schedules and no fear is expressed that sufficient ore will not be brought down the Lakes to meet requirements. We quote, f.o.b. lower Lake docks, as follows:

Old range Bessemer, $6.40; old range non-Bessemer, $5.65; Mesaba Bessemer, $6.15; Mesaba non-Bessemer, $5.50.

Pig Iron.—The pig iron situation is growing tighter daily. Consumers' stocks, accumulated when the supply was more liberal, have become low, and shipments are being made to supply only immediate demands. Some foundries have been brought to the verge of closing down before they were able to secure iron to keep their plants running. Allocations by the pig iron committee fell off somewhat during the past week, amounting to 31,000 tons as compared with 41,500 tons during the previous week. The allocations included 4000 tons of low phosphorus iron, 7000 tons of charcoal, 7000 tons of basic, 11,000 tons of foundry, 1000 tons of malleable and some miscellaneous lots. The spurt in the demand for charcoal iron was due to the allocation of 6000 tons of this grade to a Western railroad. The total allocations from May 1 to Aug. 26 were 785,000 tons. Although the tonnage allocated has declined in the past two weeks, new requests from the Government for allocations continue very heavy. Among those pending are four lots of basic iron aggregating 30,000 tons. There is still considerable inquiry for pig iron for 1919 delivery, although the demand is not as active as a few weeks ago. One leading seller in the Cleveland territory has withdrawn from the market after taking on considerable tonnage as a backlog. Others are taking orders very sparingly and are booking only a small percentage of the tonnage asked for by their customers. The amount of Northern charcoal iron available for the remainder of the year and not sold for war essential purposes is less than 6000 tons, according to a statement showing all sales made by Lake Superior charcoal furnaces that was submitted by a committee of Northern charcoal iron producers in Washington last week. Consequently allocations will have to be made very carefully hereafter and new allocations will be made for the most part on the ground that new requirements are more essential than some of those for which pig iron orders are already on the producers' books. Owing to the absence of H. G. Dalton, Chairman of the Pig Iron Sub-Committee, the charcoal iron producers have deferred until next month action on the matter of appointing a special committee of their own to handle charcoal iron allocations. We quote delivered Cleveland as follows:

Bessemer	$36.60
Basic	33.40
Northern No. 2 foundry	33.40
Southern No. 2 foundry	38.00
Gray forge	32.40
Ohio silvery, 8 per cent silicon	47.90
Standard low phosphorus, Valley furnace	53.00

Ferroalloys.—The demand for ferroalloys is active. A Cleveland and North Central Ohio consumer are each inquiring for 2000 tons of ferromanganese and spiegeleisen, and these, with other inquiries for the latter, aggregate about 4000 tons. All these inquiries are for the first half of next year. The McKinney Steel Co., which is inquiring for a round tonnage of spiegeleisen for the same delivery, has not yet placed its order. This year's prices are being quoted for the first half.

Coke.—There is a great deal of inquiry for both Connellsville and by-product foundry coke for prompt shipment the remainder of the year and for 1919 delivery. Most of the consumers who are inquiring for coke for this year's delivery want it for stock. One Cleveland interest, which has had a surplus of by-product coke, due to one of its furnaces being out of blast, has sold all this surplus coke.

Bolts, Nuts and Rivets.—The demand for bolts and nuts continues very heavy. Makers are requiring buyers to furnish affidavits under the Government regulations, and some delay is being caused in placing orders because consumers are not familiar with the regulations. Production is slow because of labor shortage and shortage of material, and deliveries are getting further behind, although most buyers are anxious for quick shipments. Rivet specifications continue to come out in very heavy volume, and some of the makers are three months behind on deliveries. Some new business was placed during the week by Pacific Coast shipyards, and one order came out for 300 tons for the French Government.

Old Material.—A great deal of mixed scrap is being placed on the market by some of the railroads that because of the scarcity of labor are selling material as it is received at their yards and passing the burden of sorting on to the yard dealers. The latter are handling the material slowly because of the labor situation.

The market is very firm and only moderately active. There is a good demand for steel for open-hearth furnaces, although mills generally have fair stocks and are getting shipments as fast as needed. Borings and turnings are in good demand and are moving at the Government price. Cupola cast scrap is also active and firm. Busheling is quiet. Prices are unchanged. We quote delivered consumers' yards in Cleveland and vicinity as follows:

	Per Gross Ton	
Steel rails	$28.00 to	$29.00
Steel rails, under 3 ft.		34.00
Steel rails, rerolling		34.00
Iron rails		39.00
Iron car axles		46.50
Steel car axles		46.50
Heavy melting steel		29.00
Cast borings	18.50 to	19.00
Iron and steel turnings and drillings	18.50 to	19.00
Hydraulic compressed sheet scrap	28.00 to	29.00
No. 1 railroad wrought		34.00
Cast-iron carwheels, unbroken		29.00
Cast-iron carwheels, broken		34.00
Agricultural malleable	29.00 to	30.00
Railroad malleable		34.00
Steel axle turnings		24.00
Light bundled sheet scrap	24.50 to	25.00
Cast-iron scrap		29.00
Cast-iron scrap, broken to cupola size	33.00 to	34.00
No. 1 busheling	30.00 to	31.00
Per Net Ton		
Railroad grate bars	$23.00 to	$24.00
Stove plate	23.00 to	24.00

Finished Iron and Steel.—The steel situation in respect to the jobbing trade is growing more serious. Jobbers are able to get very few shipments, their stocks are steadily growing lower and they see little prospect of early relief. The demand on the jobbers is heavy, but much of the material wanted cannot be supplied. There is a good demand from the jobbing trade for hard steel and rail rerolling mills are taking some of this business for fairly good delivery. One Pittsburgh district mill which has been supplying the jobbing trade with bars and light structural material rolled from shell discard is now filled up on this material and was compelled this week to turn down a jobber's inquiry for 1700 tons. Some of the implement manufacturers have agreed to accept steel rolled from shell discard on their contracts. One leading independent mill is now so filled up with war essential orders that it is now accepting no class C or D orders. Mill production has increased because of improved weather conditions. Mill inquiries from consumers are rather light, as most of the tonnage required is now placed in direct Government orders. There is considerable inquiry for plates, but orders for open-hearth plates are being accepted by some mills only on direct allocations. A Cleveland mill is now shipping plates to Japanese shipbuilders as a result of the recent trade agreement between the two Governments.

Steel bars, 4.07c.; plates, 4.42c.; structural material, 4.17c.; No. 10 blue annealed sheets, 5.42c.; No. 28 black sheets, 6.42c.; No. 28 galvanized sheets, 7.67c.

Public Utility Construction Limited

WASHINGTON, Aug. 27.—The Capital Issues Committee has sent a letter to the Public Utility Commission of each State asking them to postpone during the war every extension of a street car line, electric lighting system, water main, street paving, or other public utility enterprise not absolutely essential to the war. Although the letter is based primarily on financial considerations there is no doubt that much of its urgency has been increased by the serious shortage of the steel necessary for such extensions.

The United States Highways Council has also put a prohibition upon highway construction that is not essential. The council has made public a series of regulations effective Sept. 10.

The Pittsburgh Steel Products Co., Monessen, Pa., recently put into effect among the men in its plants a plan for systematically collecting money for war purposes, and it is working out very satisfactorily.

IRON AND INDUSTRIAL STOCKS

Marked Rally in Steel and Some Other Stocks As Week Ends—Liberty 3½ Bonds at New High Value

NEW YORK, Aug. 27.

Until Saturday of last week the dullness and lassitude of the market continued, distinguished by tight money and absence of public interest. On that day there was a decided spurt in activity and a marked advance in prices led by U. S. Steel common. It was a demonstration of the latent buying power previously held in check. The change was due to the complexion of the war news which maintained its brightness and to the preparations looking toward the lending of call money to bankers and bill brokers on acceptances at the acceptance rate. The upward tendency, which started on Saturday, was intensified moderately on Monday and yesterday, the steel stocks and some specialties leading. On Tuesday Steel common attained a new high record for the year at 115⅞, with Republic, Lackawanna, Bethlehem and others also showing liberal advances. The copper stocks remained inactive but exhibited a strong undertone. In the bond market the Liberty 3½ per cent bonds attained a new high record at above 102.50 but fell to nearer 102 on Monday and Tuesday.

The range of prices in active iron and industrial stocks from Tuesday of last week to Wednesday of this week was as follows:

Allis-Chalmers, com.	33	- 34	Int. Har. Corp. com.	64	- 65
pf.	83½	- 85	Lackawanna St.	83½	- 84⅞
Am. Can. com.	46½	- 48½	Lake Sup. Corp.	18	- 19
Am. Can. pf.	93¼	- 93½	Midvale Steel	52⅝	- 54
Am. Car & Fdry. com.	84½	- 86¼	Net-Acme		31⅝
pf.	107¾		Nat. Enam. & Stmp. com.	51⅜	- 52
Am. Loco. com.	66⅜	- 67¾	N. Y. Air Brake	125	-127
Am. Radiator, com.	235		Nova Scotia St.	65	- 67
Am. Ship, com.	124	-135	Pressed St. com.	70	- 71½
Am. Ship, pf.	87		Ry. Steel Spg. com.	63¾	- 69¼
Am. Steel Fdries.	74½	- 78⅞	pf.	101½	-102
Bald. Loco. com.	93¼	- 95⅝	Republic, com.	91⅜	- 93¾
Beth. Steel, com.	84⅛	- 85½	Republic, pf.	101	-101⅞
Beth. St. Cl. B.	83	- 85⅜	Sloss, com.	59½	- 61¾
Central Fdry. pf.	44	- 46	Sloss, pf.		92
Chic. Pneu. Tool	68½		Superior Steel	42½	- 43¼
Colo. Fuel	46	- 47⅝	Un. Alloy Steel	38	- 39
Crucible St. com.	68	- 69⅝	U. S. Pipe, com.	13¼	- 14⅞
Crucible St. pf.	91		U. S. Pipe, pf.	43¼	- 44½
Gen. Electric	146	-147½	U. S. Steel, com.	110⅜	-115⅞
Gt. No. Ore Cert.	31½	- 32¼	U. S. Steel, pf.	110	-110⅝
Gulf States Steel	79½	- 82⅝	Va. I. C. & Coke		73
Int. Har. of N. J. com.	126	-128½	Warwick	8⅛	- 8¼
pf.	106	-107⅝	Westinghouse El.	43¼	- 44

Dividends

The Crucible Steel Co. of America, quarterly, 1¾ per cent on the preferred, payable Sept. 30.

The General Electric Co., quarterly, 2 per cent, payable Oct. 15.

The Gulf States Steel Co., quarterly, 2½ per cent on the common, payable Oct. 1.

The Lackawanna Steel Co., quarterly, 1½ per cent, payable Sept. 30.

The Moline Plow Co., quarterly 1¾ per cent on the first preferred, payable Sept. 1.

The Republic Iron & Steel Co., quarterly, 1½ per cent on the common, payable Nov. 1, and 1¾ per cent on the preferred, payable Oct. 1.

The Steel Products Co., quarterly, 1¾ per cent on the preferred, payable Sept. 1.

Lake Superior Corporation Report

TORONTO, ONT., Aug. 26.—The annual report of the Lake Superior Corporation, Sault Ste. Marie, Ont., for the fiscal year ended June 30, 1918, is interesting for a twofold reason. In the first place from a financial standpoint, it is reassuring, while in the second there is furnished for the first time in the history of the corporation a detailed account of every subsidiary company. This latter feature will be particularly gratifying to shareholders who had in the past been urging that this should be done. The net earnings for the year from operations of the subsidiary companies of the Lake Superior Corporation, excluding the Algoma Central and Hudson Bay Co., and Trans St. Mary's Traction Co., were $6,551,495.11, an increase of $1,228,490.45 over the previous year. This with the

sum of $769,344.42 brought forward from last year, less depreciation of $345,405.89 on account of the Algoma Eastern Railway to June 30, 1917, not previously accrued, makes a total of $6,975,433.64 for the fiscal year 1918, as compared with $5,663,092.19 for the year 1917. The total amount deducted for interest on bonds, dividends, reserve and depreciation was $6,307,140.94, leaving the amount carried forward $668,292.70.

Since the outbreak of war the Algoma Steel Corporation has greatly improved its plant, both in regard to capacity and efficiency. Four years ago, two-thirds of its steel furnaces were Bessemer and one-third open-hearth. Now having scrapped the former, in order to produce the desired quantity of shell steel, the furnaces are all of the open-hearth type. During the past year the Corporation has also installed a fourth blast furnace of 400-ton capacity, and improved and repaired three others. Important improvements are also in progress in connection with its coke ovens. A further contract has also been made for 25 by-product ovens, installation to be completed by the end of the present year. In order to lessen dependence on outside supplies and outside assistance a plant is being erected for the manufacture of silica brick.

Earnings of subsidiaries of the Lake Superior Corporation, for the year ended June 30, 1918, compare as follows:

	1918	1917	1916
Net from op. sub. cos....	*$6,551,495	$5,323,005	$3,503,471
Balance previous year...	423,938	340,087	†331,765
Int. bds. subsid. cos. and other advs.	1,315,041	1,419,071	1,513,539
Dis. sec. sold	.....	.....	206,680
Sinking fund payable....	278,186	586 485	667,173
Renewals	2,508,912	2,742,155	425,594
Paid Lake Sup. Cor. as interest and divs.	705,000	.....	290,000
Reserve against abnormal cost	1,000,000	.....	.....
Miscellaneous deductions.	.....	145 036	.....
Balance profits	668,292	769,844	68,777

*Does not include Algoma Central & Hudson Bay Railway Co. and Trans. St. Mary's Traction Co.
†Deficit.

CORRESPONDENCE

A New Tax Law Suggestion

To the Editor:—The problem confronting the Government is securing from the Nation such amounts of money as are needed to defray the cost of this war. The problem confronting the country is the provision of the amounts decided upon as necessary to the Government.

The further problem confronting the Government is to raise such amount without imposing an undue strain upon strong as well as relatively weak business firms. The two principal methods now employed are taxation and borrowing.

Taxation has been readily accepted by the industries generally and will prove further acceptable up to a rate that threatens to discourage manufacture. It carries with it the danger that under certain conditions an excessive tax may spell actual ruin for some weaker business concerns whose activity is nevertheless an important one in the furnishing of war materials.

Borrowing may bring the same amount to the treasury as will taxation, subject to the return to the lender of the money borrowed, within a time determined as safe by the treasury.

The present policy adopted by the country is a combination of the two methods.

My suggestion is such modification of the taxation plan as will avoid the evils and dangers of excessive taxation by changing, at the point where the danger begins, to loans instead of taxes, but the loans to be forced loans. The 1917 tax rate may be assumed as representing a proved safe maximum taxation.

A manufacturer, under this suggested plan, would return to the Government the same total amount as it might decide it needs; the Government in turn would give him its note in the shape of loan certificates for such excess over safe taxation as might otherwise imperil certain businesses and with that imperil or even destroy a corresponding source of revenue. The possession of such loan certificates as a safe asset and collateral would enable the manufacturer to safely stand the stress. Nor need such certificates bear as high a rate of interest as the later Liberty loans; probably 3 per cent would be ample, provided these loans are made entirely free of all taxes, as they should be in fairness to their character of forced loans.

The amount to be so raised could be made fully equal to, and even in excess of, the amount that it is expected to secure from increased industrial taxation.

HENRY HESS,
President Hess Steel Corporation.
Baltimore, Md.

The Supply of Roll Designers

To the Editor: There is not enough rolling-mill roll-designers to satisfy the demand of the mills. The condition is mainly due to the greatest number of roll trains ever known to be in operation in one period which, of course, causes more roll turning to be done. Another serious cause is the inability of regularly engaged roll designer to do any work for those outside the firm employing him. In other words, just now, a roll designer employed in any one mill has all and more than he can attend to.

Rolling mills report fewer applicants entering for the roll turning trade and, on the other hand, a good many workmen who have served five or six years wish to do nothing but the machine work of turning off the rolls. Far too many workmen make no effort to go farther than the machine work exclusively, and signify they do not care to take up the responsibilities attending the designing. Naturally, that condition is not conducive to the best interests of the rolling mill employing them, and work turned out by such men results in nothing short of "guess-work" with all its expensive sequence.

Particularly at the present there seems to be no other effective way of correcting the conditions unless the rolling-mill management seek the service of those making a special business of roll designing and those who can furnish both designs and charts bearing on the best practices for rolling standard, special and difficult shapes. Independent of the mills, those who offer to furnish the data for the benefit of the mills employing just a lathe hand should be expected to deliver something reliable in the way of designs carrying the essential details; the method of conformation embodying the factors known to be effective which, of course, must be the result of long experience in more than one branch of the roll turning trade.

As conditions now are, roll designs in detail, and self-explanatory charts on the progressive conformation, should be placed before the roll turners by a large number of the mills if they expect to better the work of the roll-turning department and eliminate guess-work which means frequent trials, loss of time and labor, rejected material over inspection, reduction in output and a direct loss to the company in revenue.

A. W. HEINLE.
Crafton, Pittsburgh, Aug. 21, 1918.

That the Mexican Government will buy $1,000,000 worth of farming implements and sell them at cost on the instalment plan to poor farmers was the announcement made at St. Louis last week by Pastor Rouaix, Secretary of Agriculture for Mexico, just before his return to the Mexican capital after a two days' stay in St. Louis.

Gulf States Steel Co. reports net earnings for July, before taxes, of $144,340, as compared with $303,027 for July, 1917, a decrease of $158,687.

Prices Finished Iron and Steel, f.o.b. Pittsburgh

An advance in freight rates of 25 per cent from Pittsburgh on finished iron and steel products, including wrought iron and steel pipe, went into effect June 25, 1918. The rates from Pittsburgh, in carloads, to points named, per 100 lb. are as follows: New York, 24.5c.; Philadelphia, 23c.; Boston, 27c.; Buffalo, 17c.; Cleveland, 17c.; Cincinnati, 23c.; Indianapolis, 25c.; Chicago, 27c.; St. Louis, 34c.; Kansas City, 59c.; St. Paul, 49½c.; Denver, 99c.; Omaha, 59c.; minimum carload, 36,000 lb. to four last named points; New Orleans, 38.5c.; Birmingham, 57.5c.; Pacific Coast, $1.25; minimum carload, 80,000 lb. To the Pacific Coast the rate on steel bars and structural steel is $1.315, minimum carload 40,000 lb.; and $1.25, minimum carload 50,000 lb. On wrought iron and steel pipe the rate from Pittsburgh to Kansas City is 50c. per 100 lb., minimum carload 46,000 lb.; to Omaha, 50c., minimum carload 46,000 lb.; to St. Paul and Minneapolis, 49.5c., minimum carload 46,000 lb.; Denver, 99c., minimum carload 46,000 lb. A 3 per cent transportation tax applies. On iron and steel items not noted above, rates vary somewhat and are given in detail in the regular railroad tariffs.

Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in. angles, 3 to 6 in. on one or both legs, ¼ in. thick and over, and zees, structural sizes, 3c.

Wire Products

Wire nails, $3.50 base per keg; galvanized, 1 in. and longer, including large-head barb roofing nails taking an advance over this price of $2, and shorter than 1 in., $2.50. Bright basic wire, $3.35 per 100 lb.; annealed fence wire, Nos. 6 to 9, $3.25; galvanized wire, $3.95; galvanized barb wire and fence staples, $4.35; painted barb wire, $3.65; polished fence staples, $3.65; cement-coated nails, $3.40 base; these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 47 per cent off list for carload lots, 46 per cent for 1000-rod lots, and 45 per cent off for small lots, f.o.b. Pittsburgh.

Bolts, Nuts and Rivets

Large structural and ship rivets.....$4.40 base
Large boiler rivets.....$4.50
7/16 in. x 6 in. smaller and shorter rivets..50-10 per cent off list
Machine bolts h.p. nuts, ⅜ in. x 4 in.:
Smaller and shorter, rolled threads....50-10-5 per cent off list
Cut threads.....50-5 per cent off list
Larger and longer sizes.....40-10 per cent off list
Machine bolts, c.p.c. and t. nuts, ⅜ in. x 4 in.:
Smaller and shorter.....40-10 per cent off list
Larger and longer.....35-5 per cent off list
Carriage bolts, ⅜ x 6 in.:
Smaller and shorter, rolled threads.....50-5 per cent off list
Cut threads.....40-10-5 per cent off list
Larger and longer sizes.....40 per cent off list
Lag bolts.....50-10 per cent off list
Plow bolts, Nos. 1, 2, 3.....50 per cent off list
Hot pressed nuts, sq., blank.....2.50c. per lb. off list
Hot pressed nuts, hex., blank.....2.30c. per lb. off list
Hot pressed nuts, sq., tapped.....2.30c. per lb. off list
Hot pressed nuts, hex., tapped.....2.10c. per lb. off list
C.p.c. and t. sq. and hex. nuts, blank.....2.25c. per lb. off list
C.p.c. and t. sq. and hex. nuts, tapped.....2.00c. per lb. off list
Semi-finished hex. nuts:
⅜ in. and larger.....60-10-10 per cent off list
7/16 in. and smaller.....70-5 per cent off list
Stove bolts.....70-10 per cent off list
Stove bolts.....2½ per cent extra for bulk
Tire bolts.....50-10-5 per cent off list

The above discounts are from present lists now in effect. All prices carry standard extras.

Wire Rods

No. 5 common basic or Bessemer rods to domestic consumers, $57; chain rods, $65; screw, rivet and bolt rods and other rods of that character, $65. Prices on high carbon rods are irregular. They range from $70 to $80, depending on carbons.

Railroad Spikes and Track Bolts

Railroad spikes, 9/16 in. x 4½ in. and heavier, per 100 lb., $3.90, in lots of 200 kegs of 200 lb. each, or more; track bolts, $4.90. Boat spikes, $5.25 per 100 lb., f.o.b. Pittsburgh.

Terne Plate

Effective May 21 prices on all sizes of terne plates are as follows: 8-lb. coating, 200 lb., $15 per package; 8-lb. coating, I. C., $15.30; 12-lb. coating, I. C., $17.00; 15-lb. coating, I. C., $18.60; 20-lb. coating, I. C., $19.60; 25-lb. coating, I. C., $20.60; 30-lb. coating, I. C., $21.75; 35-lb. coating, I. C., $22.75; 40-lb. coating, I. C., $24.00 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

Iron and Steel Bars

Steel bars at 2.90c. from mill. Refined iron bars, 3.50c. in carload and larger lots, f.o.b. mill.

Wrought Pipe

The following discounts are to jobbers for carload lots on the Pittsburgh basing card, as announced Nov. 5 by the Government on steel pipe, those on iron pipe being the same as quoted for some time:

Butt Weld

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
⅛, ¼ and ⅜	44	17½	⅛ and ¼	23	+4
½	48	33½	⅜	24	+3
¾ to 3	51	37½	½	28	10
			¾ to 1½	33	17

Lap Weld

2	44	31½	1¼	18	3
2½ to 6	47	34½	1½	25	11
7 to 12	44	30½	2	26	12
13 and 14	34½	..	2½ to 6	28	15
15	32	..	7 to 12	25	12

Butt Weld, extra strong, plain ends

⅛, ¼ and ⅜	40	22½	⅛, ¼ and ⅜	22	5
½	45	32½	½	27	14
¾ to 1½	49	36½	¾ to 1½	33	18
2 to 3	50	37½			

Lap Weld, extra strong, plain ends

2	42	30½	1¼	19	4
2½ to 4	45	33½	1½	25	11
4½ to 6	44	32½	2	27	14
7 to 8	40	26½	2½ to 4	29	17
9 to 12	35	21½	4½ to 6	28	16
			7 to 8	20	8
			9 to 12	15	3

To the large jobbing trade an additional 5 per cent is allowed over the above discounts, which are subject to the usual variations in weight of 5 per cent. Prices for less than carloads are four (4) points lower basing (higher price) than the above discounts on black and 5½ points on galvanized.

On butt and lap weld sizes of black iron pipe, discounts for less than carload lots to jobbers are seven (7) points lower (higher price) than carload lots, and on butt and lap weld galvanized iron pipe are nine (9) points lower (higher price).

Boiler Tubes

The following are the prices for carload lots, f.o.b. Pittsburgh, announced Nov. 13, as agreed upon by manufacturers and the Government:

Lap Welded Steel		*Charcoal Iron*	
3½ to 4½ in.	34	3½ to 4½ in.	12½
2½ to 3¼ in.	24	3 to 3¼ in.	+ 5
2¼ in.	17½	2½ to 2¾ in.	+ 7½
1¾ to 2 in.	13	2 to 2¼ in.	+22½
		1¾ to 1⅞ in.	+35

Standard Commercial Seamless—Cold Drawn or Hot Rolled

	Per Net Ton		Per Net Ton
1 in.	$340	1¾ in.	$220
1¼ in.	280	2 to 2½ in.	190
1⅜ in.	270	2¾ to 3¾ in.	180
1½ in.	220	4 in.	200
		4½ to 5 in.	220

These prices do not apply to special specifications for locomotive tubes nor to special specifications for tubes for the Navy Department, which will be subject to special negotiation.

Sheets

Makers' price for mill shipments on sheets of United States standard gage in carload and larger lots, are as follows:

Blue Annealed—Bessemer	Cents per lb.
No. 8 and heavier	4.20
Nos. 9 and 10	4.25
Nos. 11 and 12	4.30
Nos. 13 and 14	4.35
Nos. 15 and 16	4.45
Box Annealed, One Pass Cold Rolled—Bessemer	
Nos. 17 to 21	4.80
Nos. 22 and 24	4.85
Nos. 25 and 26	4.90
No. 27	4.95
No. 28	5.00
No. 29	5.10
No. 30	5.20
Galvanized Black Sheet Gage—Bessemer	
Nos. 10 and 11	5.25
Nos. 12 and 14	5.35
Nos. 15 and 16	5.50
Nos. 17 to 21	5.65
Nos. 22 and 24	5.80
Nos. 25 and 26	5.95
No. 27	6.10
No. 28	6.25
No. 29	6.50
No. 30	6.75
Tin-Mill Black Plate—Bessemer	
Nos. 15 and 16	4.80
Nos. 17 to 21	4.85
Nos. 22 to 24	4.90
Nos. 25 and 27	4.95
No. 28	5.00
No. 29	5.05
No. 30	5.05
Nos. 30½ and 31	5.10

Metal Markets

Cents Per Pound for Early Delivery

	Copper, New York		Tin,	Lead		Spelter	
Aug.	Lake	Electro-lytic	New York	New York	St. Louis	New York	St. Louis
21	26.00	26.00	*91.00	8.05	7.75	9.12½	8.87½
22	26.00	26.00	*90.00	8.05	7.75	9.25	9.00
23	26.00	26.00	*89.00	8.05	7.75	9.37½	9.12½
24	26.00	26.00	....	8.05	7.75	9.37½	9.12½
26	26.00	26.00	*88.00	8.05	7.75	9.50	9.25
27	26.00	26.00	*88.00	8.05	7.75	9.50	9.25

*Nominal.

NEW YORK, Aug. 28.

Quietness and strength pervade all the markets. Activity in copper is not as brisk but demand continues strong. Tin is easier but quiet. Lead is acutely scarce. Spelter is higher but not as active as a week ago. Antimony has advanced.

New York

Copper.—The market has quieted down as compared with the activity following the settlement of the 26c. price for a definite period. Buying for delivery to Nov. 1 has been very large and there have also been some contracts for delivery in November and December, but at the price ruling at that time. The data as to the output for July of all copper mines in the United States are interesting. The total thus far was 167,000,000 lb. as compared with 129,000,000 lb. in July, 1917, and with 175,000,000 lb. in June, this year. This is a falling off in July this year, accounted for in part by lack of labor. Copper exports in July were 27,963 tons, of which over 20,000 tons went out from New York. Total exports last month were about 30,000 tons, estimating those to Canada. Exports for the first seven months of 1918 have been about 217,000 tons, as against a little more than 299,000 tons to Aug. 1, 1917.

Tin.—Tin has been falling gradually in the last week, a continuance of the tendency manifest a week ago. Futures are lower and so is spot, though still nominal. Because of the downward tendency in futures there is less inclination to hold any prompt metal that might be available, and this is now quoted nominal at 88c., New York. As to futures, it is reported that October shipment from the Straits can be bought for 78c., as against 81c. a week ago, but no business is noted. Buyers are still awaiting the outcome of the important conferences in London, and the markets are therefore slowly sagging. Banca and Chinese brands, however, are still closely held at about $1 per lb. Arrivals of tin at Atlantic ports to date inclusive have been 2380 tons and that coming in at Pacific ports reported as 3175 tons. The London market is also falling, spot Straits having been quoted there yesterday at £367 10s. per ton, against £381 10s. a week ago.

Lead.—The event of the week has been the circular of the lead committee of the producers giving instructions as to the conservation and distribution of lead and asking the earnest co-operation of every manufacturer and dealer. Non-essential uses of the metal are requested to be eliminated. The unnecessary accumulation of stocks is cited as impossible. No pig lead will be sold by producers for resale in carload lots and remelted, and scrap lead is not to be sold at higher prices than the current market for virgin metal. Retail dealers will be supplied only on the agreement to resell to customers whose requirements appear essential and also to limit the price to ½c. per lb. above the ruling wholesale price. It is stated that dealers are considerably dissatisfied with this proviso as their margin above expenses to handle such lots leaves an unsatisfactory return. That the supply of metal is short is confirmed by this action of the committee. The shortage is acute; steps must be taken to increase output or diminish consumption. To accomplish the former will take months. Agreed prices continue at 7.75c., St. Louis, or 8.05c., New York, with less than carloads at 8.55c., New York.

Spelter.—Sales of considerable quantities of prime Western have been made in the past week and the market has advanced at the same time. Yesterday this grade was quoted at 9.25c., St. Louis, or 9.50c., New York, for September or early delivery, with October held at 9.12½c., St. Louis, and third quarter at 9c., St. Louis. Thus far this week demand has fallen off somewhat. The Government's weekly statistics show an increase in stocks of Grade A and an advance in those of prime Western, but the changes were small. At a meeting in the last week at Washington the price of Grade A of 12c. per lb. as a maximum, effective until Sept. 1, was continued until Jan. 1, 1919. The same action was taken on sheet and plate zinc, both being retained at 15c. per lb. base for the former and 14c. per lb. for the latter.

Antimony.—The market is decidedly stronger. The Japanese are said to have made large purchases of the metal in that country so that it is higher than that in New York. For large lots the quotation is now 14.25c. to 14.50c., duty paid, for early delivery.

Aluminum.—Maximum prices for No. 1 virgin metal, 98 to 99 per cent pure, and for scrap, have been continued unchanged from Sept. 1 to March 1, 1919, by action of the authorities at Washington. For 50-ton lots, 33c. per lb. is the price; for lots of 15 to 50 tons, 33.10c. per lb., and for 1 to 15-ton lots, 33.20c. per lb. War consumption, especially in airplane work, is very large.

Old Metals.—The market is quiet. Dealers' selling prices are as follows:

	Cents per lb.
Copper, heavy and crucible	26.00
Copper, heavy and wire	25.00
Copper, light and bottoms	23.00
Brass, heavy	17.75
Brass, light	13.25
Heavy machine composition	26.00
No. 1 yellow rod brass turnings	14.75 to 15.25
No. 1 red brass or composition turnings	23.50
Lead, heavy	7.625
Lead, tea	6.25
Zinc	6.75

Chicago

AUG. 27.—The steady call for copper is apparently increasing, but despite predictions of future shortage the present demand is being satisfied. Tin is dull and easier, partly because more may be coming in, but more probably because it is feared that the Governments may unite to fix an official price. Lead is under the control of the Lead Producers' Association and the War Industries Board and is being distributed solely on the merits of the inquiries. No metal is sold on open orders, the regulation being more strict than in copper. Although spelter is in light demand, it is obtained with difficulty. Considerable activity has been shown in antimony and there is promise of greater consumption. The price has taken an upward turn.

We quote copper at 26c. for carloads and 27.30c. for part carloads; tin, 90c.; lead, nominal at 7.85c.; spelter, 9.50c. to 9.75c.; antimony, 15.50c. to 16c. On old metals we quote copper wire, crucible shapes, 22.50c.; copper clips, 21.75c.; copper bottoms, 21.50c.; red brass, 22.50c.; yellow brass, 15.50c.; lead pipe, 6.25c.; zinc, 5.75c.; pewter, No. 1, 45c.; tinfoil, 50c., and block tin, 60c.

St. Louis

AUG. 26.—Non-ferrous metals have been somewhat stronger, though only spelter is quotably higher, closing to-day at 8.90c. with lead firm at 7.75c., in car lots. In less than car lots the quotations have been, for the week, as follows: Lead, 8.25c.; spelter, 9.50c.; tin, $1.10 and none available; copper, 27.85c.; Asiatic antimony, 16c. The zinc ore market is higher with second grade basis 40 per cent selling at $55 a ton, with the average price, including top grades, now $60 in the Joplin district. Car shortages are interfering with mining operations. The usual amount of first grade ore was sold at $75 per ton and the average for the week for the district was $56 per ton. Calamine was steady with a range of $30 to $40 per ton, basis of 40 per cent metal, and the average for the week for the district

was $38 per ton. Lead ore was strong at $101 top, basis of 80 per cent metal, with the average for the week for the district at $100 per ton. On miscellaneous scrap metals we quote dealers' buying prices as follows: Light brass, 10c.; heavy yellow brass, 14c.; heavy red brass 19.50c.; light copper, 18.50c.; heavy copper and copper wire, 20c.; pewter, 30c.; tinfoil, 60c.; aluminum, 20c.; zinc, 5c.; lead, 6c.; tea lead, 5c.

Railroad Car Allocations

The Railroad Administration has allocated 20,000 cars for use overseas, most of them of the 30 tons capacity on eight wheels. It is about to distribute orders for 4000 narrow-gage cars, also on eight wheels, comprising 800 box cars, 2050 gondolas, 650 flat, 220 tank and 280 V-shape dump cars. It is understood also that an inquiry is in the market from the Baltimore & Ohio for 500 flat, 500 box and 100 caboose cars. The Pressed Steel Car Co. is to build 25 hopper cars for the Jones & Laughlin Steel Co.

The distribution of the 20,000 cars is as follows: American Car & Foundry Co., 5400 gondolas, of which 1000 are low-side and the remainder high-side construction; Standard Steel Car Co., 4500 high-side gondolas and 1000 flat cars; Liberty Car Co., 700, and St. Louis Car Co., 600, both low-side gondolas; Pressed Steel Car Co., 2800 gondolas, of which 500 are low-side type; Pullman Co., 500 high-side gondolas and 700 flat cars; Haskell & Barker Car Co., 2200 gondolas, of which 700 are low-side; General American Tank Car Corporation, 500 low-side gondolas and 400 tank cars; Standard Car Construction Co., 300 flat cars and 400 tank cars.

Fuel Drive in the Connellsville Coke Region

UNIONTOWN, PA., Aug. 26.—A "fuel drive" is the next step in prospect to increase the production of the Connellsville coke region. W. L. Byers, manager of production for the regional fuel administration, has announced that the aim of the administration is for 800,000 tons of coal weekly, an increase of about 15 per cent over the present output and that plans for an extensive campaign are now being shaped to realize that goal.

As the opening gun in the fuel drive, a ringing statement from Charles M. Schwab, Director General of the Emergency Fleet Corporation was circulated among the coal and coke workers this week.

Following up Mr. Schwab's statement that a full time man is a true patriot, Mr. Byers at meetings with the coal and coke workers has appealed to them to make application for deferred classification in the draft because of their occupation. Many workers have declined to seek deferred classification in the belief that they would be termed slackers.

Steel Corporation Making High Grade Ferrosilicon

The United States Steel Corporation is now making electrolytic ferrosilicon and also electrodes at the Duquesne plant of the Carnegie Steel Co., Pittsburgh. The ferrosilicon is entirely the 75 per cent grade and is being used in producing the high silicon steel, 4 to 4.50 per cent silicon, necessary for certain electrical purposes, which is one of the company's products. The principal cause for the installation was inability to purchase ferrosilicon of the high percentage of silicon desired. The electrode plant is making carbon electrodes, 24 in. in diameter, for the ferrosilicon electric furnace only. Neither ferrosilicon nor electrodes have been made heretofore by the Steel Corporation.

The Vulcan Iron Works, Jersey City, N. J., has purchased the steam boiler plant of Theo. Smith & Sons Co., Jersey City. This purchase gives the Vulcan Iron Works a plant occupying two square blocks. The Vulcan works has a contract with the Emergency Fleet Corporation for marine boilers.

GREAT WAR TAX BILL

Enactment Before November Improbable—Basis of Excess Profits

WASHINGTON, Aug. 27.—Plans to pass the $8,000,000,000 war tax bill before the Fourth Liberty Loan campaign commences Sept. 28, as asked by Secretary McAdoo, have been abandoned by the Congressional leaders. It is even becoming doubtful whether the new measure can be written into law before election day, Nov. 5.

After two months' work on the bill, the Ways and Means Committee planned to present the final text of the measure to the House of Representatives on Thursday of this week. Its actual consideration, however, is not to begin until next Monday, Sept. 2. Although that is Labor Day, the House leaders hope to begin the debate on that date.

The Republican members of the Ways and Means Committee as well as the leaders of that party on the floor propose to make no fight against the measure as a whole, and the bill ought to be ready for final passage in the House of Representatives about Sept. 14. It will then go to the Senate where considerable opposition is developing. The Senate will immediately refer the bill to the Finance Committee, which has determined to hold hearings on the bill. The dates for these have not been set, but they will require most of the last two weeks of September. These hearings will give an opportunity to the industries of the country and all others affected by the House measure to present their views on the House taxes. Hearings were held before the House committee concerning most of the features in the measure, but they were handicapped by the fact that the testimony was based entirely on hypothetical proposals. The witnesses before the Senate committee will be able to explain the actual effect which the House measure would have upon the industries and the consumption of the country. After the Senate hearings have been completed, there will be considerable work to be done before the committee reports the bill to the Senate with its own amendments, for there is little doubt that there will be a series of finance committee changes in the bill. Then will come the Senate debate. There is always the possibility that, because of the elections the Congress will be forced to recess sometime in October to give its members an opportunity to participate in their own elections. But even if this be not done, the possibility that the Senate can complete its consideration of the bill before November is exceedingly slight.

The final figures submitted to the committee by Treasury experts estimate the income from the bill at $8,100,000,000 annually. Of this $3,000,000,000 is the expected result from the excess profits schedule. From the income tax, both individual and corporate, it is expected to gather $2,400,000,000. The estate or inheritance tax is listed at $110,000,000; beverages, including liquors as well as soft drinks, $1,100,000,000; tobacco, cigars and cigarettes, $350,000,000; automobiles, manufacturers' tax, $125,000,000, and users of automobiles and motorcycles, $73,000,000. Other items including luxuries, make up the balance.

After many revisions, the committee agreed upon the following basis for the levying of the excess profits tax —this is the strictly excess profits tax which is separate from the alternative flat war profits levy of 80 per cent.

Thirty-five per cent of the net income in excess of the excess profits credit and not in excess of 15 per cent of the invested capital for the taxable year; 50 per cent of the net income in excess of 15 per cent and not in excess of 20 per cent of capital, and 70 per cent of net income in excess of 20 per cent of this capital. The excess profits credit will consist of a specific exemption of $3,000 plus 8 per cent of the invested capital for the taxable year. A foreign corporation will not be entitled to the $3,000 specific exemption.

The Woodard Machine Co., Wooster, Ohio, is extending its foundry 150 ft. in length, thereby adding 16,500 sq. ft. of floor space.

PERSONAL

Charles M. Schwab, director general Emergency Fleet Corporation, left Philadelphia last Thursday for a trip to Eastern and Southern shipbuilding plants. Mr. Schwab will work among the men in the yards.

E. D. Brigham has been appointed manager of ore, coal and grain traffic at Lake Superior and upper Lake Michigan ports, with headquarters in the Fidelity Building, Duluth. Mr. Brigham completed 45 years of service with the Chicago & Northwestern Railway. He retired from the office of assistant freight traffic manager to devote his entire time to the Government.

George M. Naylor, an experienced transmission engineer, has resigned as assistant sales manager of T. B. Woods Son's Co., Chambersburg, Pa., and accepted a position with the Fairbanks Co. as manager of its power transmission division. He is now located at the main office, 416 Broome Street, New York.

L. J. Voyer has been appointed general manager of sales of the Liberty Steel Co., Warren, Ohio.

Edward A. Moss, Cleveland, who has been operating an engineering and brokerage business in structural steel and miscellaneous iron work, has given up his business for the duration of the war and has enlisted his services in the Production Division of the Army Ordnance Department in Cleveland.

J. C. Spencer, consulting engineer, Rockefeller Bldg., Cleveland, has been admitted to practise as an attorney and will specialize upon the law relating to engineering, architectural and construction work.

Capt. W. L. McCleary, formerly with the Whitaker-Glessner Co., Portsmouth, Ohio, now in the Ordnance Department, has been awarded a major's commission.

Harry L. Olmstead, of the engineering staff of the McKinney Steel Co., Cleveland, has been appointed to service in France as a Y. M. C. A. secretary and will leave Cleveland this week for the training school at Columbia University.

R. W. Davis is now connected with the sales organization of the Cleveland Milling Machine Co., and is in charge of the Detroit territory with offices at 705 Dime Bank building. Mr. Davis has had extensive experience in this business.

B. A. Epperson, who for 10 years represented the Stark Rolling Mill Co., Canton, Ohio, in Indiana, Illinois and the Southern States, joined the Central Officers' Training Camp at Camp Gordon, Ga., on Sept. 1.

Vance McCarty, for the past 12 years manager Pittsburgh branch of Edward R. Ladew Co., Inc., has been appointed general sales manager of the company, with headquarters in the New York office, 54 Franklin street. Mr. McCarty's connection with the Ladew company covers a period of 18 years, the first six of which were spent in the factory.

R. T. Hodgins, formerly sales manager of the Studebaker Corporation, South Bend, Ind., has been appointed general sales manager of the Cleveland Tractor Co., Cleveland.

Thomas L. Wilson, formerly connected with the duplex steel and electric steel departments of the Illinois Steel Co. at South Works, has joined the sales force of Hickman, Williams & Co., Chicago.

Major Frank R. Bacon, in private life president of the Cutler-Hammer Mfg. Co., Milwaukee, who has been stationed in New Britain, Conn., and later at Washington in the Production Division of the Ordnance Department, U. S. A., has been transferred to Chicago on similar duty.

F. S. Chavannes, president Chesapeake Iron Works, Baltimore, has been named to take charge of keeping the Federal Government advised on industrial conditions in Maryland and Virginia. The appointment was made by Chairman Baruch of the War Industries Board.

M. E. Davis, superintendent of the New Jersey Shipbuilding works of the Pusey & Jones Co., Gloucester City, N. J., has been appointed general manager in charge of this plant as well as the adjoining Pennsylvania Shipbuilding yards of the company.

C. H. Jones, formerly in the employment department of the Westinghouse Electric & Mfg. Co., East Pittsburgh, has been appointed a special agent of the United States Employment Service.

A. M. Shook, Jr., has been appointed secretary and treasurer of the Alabama Manufacturers' and Operators' Association, with headquarters in Birmingham. G. W. Conners of Birmingham is chairman and Dan Dimmick of Birmingham is vice-chairman.

E. C. Robertson, recently factory manager Frantz Premier Co., Cleveland, and latterly identified with the United States Signal Corps, in New York, has joined the organization of the Winchester Repeating Arms Co., New Haven, Conn.

C. W. Cross has been appointed special representative of the Chicago Pneumatic Tool Co. for the sale of pneumatic tools to railroads, to succeed L. C. Sprague, who has been made district manager of sales for the company at New York.

W. C. Rott, associated with Julian Kennedy, Pittsburgh, has resigned to enter the employ of Arthur G. McKee & Co., Cleveland, as office engineer. Mr. Rott was graduated from Massachusetts Institute of Technology in 1903. His first position was in the operating department of the Illinois Steel Co. at South Works. In 1904 he entered the employ, in the engineering department, of the Lackawanna Steel Co., Buffalo, where he remained until he became associated with Mr. Kennedy as office and outside engineer. He was appointed chief engineer in 1913, which position he has held until he resigned.

Director of Steel Supply Replogle, while at Johnstown, Pa., last week, in company with A. C. Dinkey, president Midvale Steel & Ordnance Co., addressed the company's employees, urging their co-operation with the War Industries Board for the increase of steel output to back up the men who have gone to the front. He will visit Youngstown, Ohio, on a similar errand and will also meet the employees of Chicago district steel plants whose product figures in an important way in the ship and shell steel programs.

Coal and Coke Production

WASHINGTON, Aug. 27.—The itemized figures of coal production prepared by the Geological Survey show a continuing decline for five consecutive weeks. The output has gone down steadily. For the week ending August 17 the production of bituminous coal, including lignite and coal made into coke, was 11,910,000 net tons. This figure shows a decrease of 379,000 net tons from the production of the week of August 10, approximately 3 per cent. But it is even more alarming because for the first time since June 22 the production has fallen below 12,000,000 tons.

The condition in the coke industry showed a slight improvement. During the week of August 17 production of beehive coal in the United States is estimated to have been 581,000 net tons, an increase over the preceding week of approximately 1 per cent.

Pittsburgh's Appeal for Coal

PITTSBURGH, Aug. 27—(*By Wire*).—The Fuel and Power Committee of the Pittsburgh Chamber of Commerce has unanimously adopted a resolution asking George S. Oliver, president of the Chamber, to name a committee and instruct it to go to Washington and personally request Harry A. Garfield, National Fuel Administrator, to override a ruling of William Potter, Fuel Administrator for Pennsylvania, and order the immediate supplying of 8000 homes in Pittsburgh with 40,000 tons of anthracite coal for winter use.

The Petroleum Iron Works Co., Sharon, Pa., is working on a large contract for the fabrication of plates for the Hog Island shipyards.

BRIDGEPORT DECISION

Advances in Wages Granted—Classification Asked by Men Refused

WASHINGTON, Aug. 28.—The National War Labor Board to-day ordered wage increases for almost 60,000 workers in 58 Bridgeport factories. This is one of the most important decisions of the board. It was hastened by the threat of the workers to strike again because of the delay in the board's decision, and Chairman Frank Walsh made a hurried trip to Bridgeport last Friday to induce employees to remain at work, promising them an immediate decision. The terms of the award were made by O. M. Eidlitz, New York, as umpire, Chairmen Walsh and Taft having been unable to agree on technical details. The decision grants wage increases to all workers receiving less than 78c. an hour and establishes a minimum wage of 42c. an hour to all male workers, skilled or unskilled, 21 years of age or older, and a minimum wage of 32c. an hour for all female workers 18 years of age or older. It grants the demand of the workers for the application of the basic 8-hr. day in all manufacturing plants at Bridgeport; establishes the right of workers to bargain collectively, and permits workers to join trade unions. It provides that women performing the same work as men shall receive equal pay. The decision follows a thorough investigation and has been awaited with keen interest.

Classification Refused

The employees lost on one important point. The board refused to order the classification asked by the men, the umpire ruling against changing the method now in operation on the ground that suddenly to order a complete readjustment of the prevailing working system would be prejudicial to the interest of the Government, which is directly concerned in the output of the Bridgeport industry. It was the demand of the workers in the machine shops that in the performance of their respective duties they be classified as tool makers, machinists, specialists and machinists' helpers, and that minimum rates of pay be established for each of these classifications. This was a major point of difference in the controversy. The employers contended that the great variety of tasks necessary in the operation of the industries made it impossible to confine the classification within the narrow limitations of the workers or to fix a flat rate of pay for workers performing so many different tasks.

Provision for Board

In addition to the selection by the workers of committees to represent them in their dealings with the managements, the decision provides that there shall be established a local board composed of six members, three to be chosen by and to represent the workers of Bridgeport and three to be chosen by and to represent the employing companies, the function of which shall be to adjust such differences as cannot be settled by employers and employees. The chairman of this committee is to be chosen by the Secretary of War and is to act as his representative on the board in its deliberations.

The wage increases ordered by the decision are those offered by the employers. These were found to be "fair and reasonable," and the board ordered that they should be accepted. In detailing the list of increases the board orders workers receiving 40c. an hour shall be paid 46c. an hour. Then there is a graduated increase for each hourly wage up to workers receiving 77c. an hour, who are to receive 78c. As the wages become higher, the rate of increase is smaller.

Chairman Walsh's Speech

BRIDGEPORT, CONN., Aug. 27.—Before a large gathering of union workers in Bridgeport, Aug. 23, Chairman Frank P. Walsh is quoted as saying: "It is my hope and earnest belief that before five days have passed, the decision which will not only affect the workers of Bridgeport, but, I am sure, will eventually affect all the workers in the United States and throughout the world in the application of the principles of democracy, will be promulgated and announced over the telegraph wires to the waiting world."

Mr. Walsh had been asked to come to Bridgeport by the labor leaders to allay the discontent which had arisen because of the long delay in the announcement of the decision. He spoke for more than an hour, setting forth with the ability and imagination for which he is noted the development toward democracy in industry and the widening of the circle of privilege until there shall be no more privilege. Some portions of his speech were wildly cheered, particularly those parts which severely scored the former actions of the employers in their efforts to suppress the growth of organized labor and the principle of collective bargaining. It was the type of address which tends to inflame class passions, and parts of it frankly admitted that if the status quo of the industries was to be maintained during the war, particularly the classification of workers as now existing, it would not be possible to give the workers the minimum wage for which they have fought and which many of them consider the cure of some industrial evils.

Priority Rules Pamphlet

THE IRON AGE has received many requests for copies of the issue of Aug. 1 containing the rules and regulations governing priorities in production, as published by the Priorities Division of the War Industries Board, and the supply of copies of that issue has been exhausted. Hence, this article, with some supplementary matter on priorities, has been reprinted in pamphlet form and will be sent to any subscriber upon receipt of an envelope, 4¾ x 11 in., with six cents in stamps attached.

War Industries Board Forms New Division

WASHINGTON, Aug. 27—(*By Wire*).—The War Industries Board announces the formation of a new division to be known as the Division on Facilities, to which will be assigned the important work of speeding up industrial activity throughout the country to meet the demands of the war program and supply essential needs of the civilian population through creation of new facilities and the conversion of existing facilities into war industries. This work is now handled by the Resources and Conversion Section headed by C. A. Otis.

At the head of the new division is Samuel P. Bush, who has been directing the expansion of ordnance facilities. Associated with him will be D. R. McLennon, Chicago, chief of the Division on Civilian Industrial Facilities.

Questions to be determined by the division will embrace all new or additional facilities in any line of production necessary to the conduct of the war. These two questions will be answered: Is it not possible through expansion to make existing facilities meet the need? If existing facilities cannot be adjusted to meet the need, how is it best to create and locate the new facilities required? With these questions will come consideration of economic matters with respect to materials, supplies, transportation, etc.

Plan for Collective Bargaining Outlined

National War Labor Board Suggests Method of Electing Shop Committees—Important Decision in Smith & Wesson Controversy

WASHINGTON, Aug. 27.—The National War Labor Board has rendered a decision in favor of the employees in the controversy at the plant of the Smith & Wesson Co., arms manufacturer, Springfield, Mass. The most important decision in the award made by the board ordered the abolition of individual contracts made by the company with its employees. Concerning these, the award declared:

"The practice of the company in times past to take restrictive personal contracts, even if lawful when made, such as were shown to the section of the board in the hearing of the case, is contrary to the principles of the National War Labor Board, and the practice of taking such contracts should be discontinued during the war."

"Relative to the charges of discrimination against employees for joining labor unions and to the discharge of certain employees as shown in the record" declares the award, "the fundamental principles upon which the National War Labor Board is founded, under the proclamation of the President dated April 8, 1918, are conclusive as to these points and admit of no misinterpretation."

The board then cites its previous statement of fundamental principles and rules:

"In accordance with said principles, we recommend that said employees be restored to their former positions and paid for all time lost by them on account of their discharge."

The board makes the following recommendation for the election of shop committees for the purpose of "collective bargaining through chosen representatives":

The election by the workers of their representative department committees to present grievances and mediate with the company shall be held, during the life of this award, in some convenient public building in the neighborhood of the plant, to be selected by the examiner of this board assigned to supervise the execution of this award or in case of his absence by some impartial person, a resident of Springfield, Mass., to be selected by such examiner. Such examiner or his substitute shall preside over the first and all subsequent elections during the life of this award, and have the power to make the proper regulations to secure absolute fairness.

In the elections the examiner shall provide, wherever practicable, for the minority representation by limiting the right of each voter to a vote for less than the total number of the committee to be selected. Elections shall be held annually.

The duties of the department committees shall be confined to the adjustment of disputes which the shop foremen and the division superintendents and employees have been unable to adjust. The department committees shall meet annually and shall select from among their number three employees who shall be known as Committee on Appeals. This committee shall meet with the management for the purpose of adjusting disputes which the department committees have failed to adjust. We recommend that all matters in dispute as to wages and other conditions of employment be adjusted by the committees herein provided for, and in case of disagreement that reference be made to this board.

Chairman Walsh's Comment

In commenting upon the award, Joint Chairman Walsh said: "This is one of the most important cases yet decided by the board. The company claimed the right to make individual contracts with the men, which was intended to prevent employees from thereafter joining labor unions under the right guaranteed to them by the very first principle of the War Labor Board. This was a flagrant violation of one of the principles of the board, viz.: that contracts of this restrictive character should be waived by all employers for the period of the war.

"This finding, of course, does not in any way affect the legality of such contracts in ordinary times:

"In this case the company further sought to deny to its employees any form of collective bargaining. The machinery is provided in the award for a complete system of collective bargaining through committees appointed by the company to meet with similar committees democratically selected by the employees of the plant.

"In order that uniformity in the industries of the nation may be had, and to prevent charges of coercion or other improper conduct upon either side, the award provides that the committees shall be selected under the direction of a representative of the National War Labor Board and that the election shall be held in a public building at Springfield, Mass.

"The board did not take up the specific grievances of the Smith & Wesson employees as to wages and conditions of employment, which were held to be onerous and exhausting, for the reason that such matters can best be adjusted by the employees and the management through the committees provided for in the award. Of course, if this cannot readily be done, summary appeals to the board for speedy adjustments are provided."

The War Labor Board later issued the following explanation of the award:

"The National Labor Board, in its ruling in this case, did not pass upon the validity of the individual contracts of the company with its employees, but said that whether such contracts were valid or not, a further making of them should be discontinued during the continuance of the war under the principles of the board, in the interest of industrial peace. The board also recommended for the same reason that the company should reinstate the employees who had been discharged for violation of the contracts, whether the discharge was legally valid or not under the terms of the contracts."

Cancelled Owing to Strike

MILWAUKEE, WIS., Aug. 26.—Because of delays resulting from a four days' strike of ship workers at the plant of the Milwaukee Dry Dock Co., Milwaukee, which is executing contracts with the Emergency Fleet Corporation for remodeling and rebuilding Great Lakes vessels for ocean service, one of the contracts has been canceled on orders from F. A. Eustis, special agent of the Corporation. The uncompleted steamer "Frontenac," a 4000-ton cargo ship, has been ordered removed from the dry dock at Milwaukee and will be completed elsewhere.

The War Labor Board has finished hearings involving wage scales and working conditions in metal-working shops in Milwaukee and Madison, Wis., and a decision is expected to be given from Washington within two or three weeks' time.

All officials of the United States Employment Service in Wisconsin, numbering about 150, held a conference in Milwaukee during the past week to discuss the administration of the Government labor recruiting program in this State. Wisconsin's quota under the new war labor allotment announced Aug. 23 is 16,980 men.

Men Urgently Needed

SEATTLE, Aug. 26.—The labor situation in Seattle has become so acute that shipbuilders have appealed to business and professional men throughout the city to come to their assistance, and hundreds of men in all classes of professional work have answered the call. It is claimed that more than 2000 men are needed immediately, if the present program of shipwork is to be carried out promptly and in the time allotted. The

supply of common labor has been decreasing rapidly. The harvests in eastern Washington have drawn heavily on the common labor supply, and the shipyards now present the urgent need for additional men. One thousand men are urgently needed for 30 days, and an additional 1000 for 60 days or longer, the shipbuilders assert.

Wilmington Manufacturers Protest

The manufacturers of Wilmington, Del., have addressed a vigorous letter to the National War Labor Board, Washington, protesting against allowing labor unions to disrupt industrial plants. The letter is in part as follows:

The right of men to join a union if they desire and the right of a great federation of unions to institute a deliberate, systematic campaign directed against peaceful establishments and for the purpose of stirring up unrest and discontent in order to recruit the ranks of the union, are two separate and distinct things. That recognition of the right to join a union carries with it any sanction to make such a national assault upon essential war industry is a proposition that should be most vigorously opposed. Such a campaign will inevitably lead to disorganization, loss of discipline and decrease of productivity among workers engaged in performing a very large part of the essential war work of the country. It is not in furtherance of any national or public need, but is instituted solely in behalf of the partisan interests of a class that is willing to take advantage of the national crisis for its own ends.

In Recognition of Loyal Service

In conformity with a recommendation of the War Department that faithful service of employees engaged in the manufacture of war materials should be recognized, the American Bronze Corporation, Berwyn, Pa., has adopted a plan of war work recognition by which each employee is awarded a bronze war worker's badge which, at the expiration of 30 days will be exchanged for a silver badge, provided the employee has rendered faithful and loyal service. After wearing the silver badge for one month, each employee will receive a cash bonus, which will continue for a period of six months, after which he is awarded a gold badge with his name engraved thereon. The gold badge entitles its wearer to the cash bonus during the entire period of his employment, provided he qualifies under the regulations.

The presentation of these badges was made a feature of a "house-warming" held on Aug. 16, in celebration of the opening of the American Bronze Corporation's new plant at Berwyn. The new structure more than triples the former capacity.

Organizing in All War Factories

The Department of Labor authorizes the following:

"Frank T. Hawley, head of the Industrial Plants Division of the Information and Education Service, Department of Labor, is sending out to employers engaged on Government contracts letters notifying them to have shop committees selected by employers and employees in all the plants. This is the first step in a nation-wide organization of employers and employees for increased production in all lines of war work.

"The Industrial Plants Division, as a part of the Information and Education Service of which Roger W. Babson is chief, is concerned equally with manufacturers and workers, with employers and employees. Both are to be organized on the common ground of fullest co-operation in furnishing the greatest output for the fighting forces of the United States."

Plant Committees to Be Organized

The Department of Labor desires that a War Industries Committee be established by the men and women in every plant engaged in war work. F. T. Hawley, Director Industrial Plants Division, has issued a poster stating that this committee is to have charge of patriotic work in the plants, including:

Calling of meetings when Government representatives are sent to address the men.

Arranging for the distribution of Government literature.

Arranging parades and other patriotic demonstrations.

Keeping all informed on war matters and Government activities, so that, knowing their country's needs, both employers and employees will eagerly respond to the call of duty.

The committee in each plant shall consist of one representative of each department or shop and in no case less than three. In addition the Department of Labor requests that the management have a representative thereon.

The chairman of each plant committee is to be nominated by the committee, subject to approval and appointment by the Secretary of Labor, as a Government representative.

Housing Developments

The Industrial Housing Commission, Washington, D. C., has awarded a contract to the Wills Egelhoff Co., 107 Park Avenue, New York, for the construction of 85 residences, each about 22 x 26 ft., for industrial employees at Charleston, W. Va. The structures will cost about $350,000.

The Westinghouse Electric & Mfg. Co. will establish a total of 1000 houses for its employees at the Essington, Pa., works, at the new town now in course of development near the works. There will also be about 150 other buildings, including boarding houses, hotels, stores, churches, etc. It is planned to have total accommodations for about 6000 persons. A first unit of 300 houses is now being erected.

A campaign will be inaugurated Sept. 7, at Newark, N. J., continuing for a week by the local branch of the United States Homes Registration Service, to ascertain the available quarters for industrial employees in that section. The activity will be known as the "rent-a-room" campaign and will include a canvass for housing accommodations. The different municipal departments, including police and fire, will co-operate in the work.

The Emergency Fleet Corporation, Philadelphia, is having plans prepared for the erection of a number of new buildings to form a community center near Gloucester City, N. J., for employees at the shipbuilding plants in that vicinity. The structures will include apartment houses, dwellings, store buildings, school house and other buildings. Bissell & Sinkler, Otis Building, Philadelphia, are architects. Officials of the Pusey & Jones Co., operating the New Jersey & Pennsylvania Shipbuilding works, in conjunction with the Emergency Fleet Corporation, have organized the Noreg Realty Co., to establish a new village to be used by employees at the yards. Construction has been commenced on about 500 new houses in the district. Harry J. Johnson, Philadelphia, has been appointed housing and general manager.

Workers in Essential Industries

Frank A. Crumpton, representing the Commercial Club, shipbuilding concerns and other interests of Superior, Wis., has returned from a conference with officials of the Emergency Fleet Corporation at Philadelphia, with the information that Superior cannot expect Government aid in making provision for more adequate housing accommodations for shipyard workers until the situation with respect to steel supplies improves sufficiently to make possible proposed increases in production at yards at the head of the Lakes. Housing conditions at Superior, it was learned, are relatively more satisfactory than at most other shipbuilding centers.

The employees of the Hartford Machine Screw Co., Hartford, Conn., have submitted to the National War Labor Board a request for a basic 8-hr. day, time and one-half for overtime and double time for Sundays and holidays. They also request that the wage scale be similar to that at Bridgeport, when the board hands down a decision in the wage controversy in that city. The decision will affect about 550 employees who

are now working under a basic 9-hr. day with time and one-quarter for overtime over 50 hours a week. The committee ask that women be paid the same wages paid men for the same work and that the new agreement be made effective from Aug. 15, 1918.

The blacksmiths, numbering over 100, who have been on strike at the United States Arsenal, Watertown, Mass., have returned to work, pending an adjustment of the controversy by the National War Labor Board.

The Eagle Lock Co., Terryville, Conn., has announced an increase of 11 per cent in the wages of women workers, affecting nearly 500 employees.

The Plume & Atwood Mfg. Co., Thomaston, Conn., has granted its employees a wage increase of three cents an hour.

PASSENGER AUTOMOBILES

Production For Last Half of This Year Limited by War Industries Board

WASHINGTON, Aug. 27.—Rating the manufacture of passenger automobiles as a billion dollar industry which should be given every possible opportunity to liquidate the $150,000,000 of stock it had on hand, the War Industries Board has reached an agreement with the representatives of this industry to permit the manufacture, in the last six months of 1918, of not to exceed 25 per cent of the total output of their respective factories for the year 1917. The board is to help "match up" these stocks.

The meetings in which the agreement was reached were characterized by complete harmony, says the announcement of the board, Messrs. Hugh Chalmers and Albert Reeves, representing the industry, accepting without hesitation or reservation the cut suggested, as one imperatively required by the demands of the Government's war program, particularly for steel, iron, coal and labor. The agreement was expressed in a letter addressed to the National Automobile Chamber of Commerce and signed by Alexander Legge, Vice-Chairman; Edwin B. Parker, Priorities Commissioner; J. L. Replogle, Director of Steel Supply, and George N. Peek, Commissioner of Finished Products, of the War Industries Board, who served as a committee with full powers to act for the board in the automobile negotiations.

Buys Nagle Corliss Engine Works

ERIE, PA., Aug. 27.—The Allen Machine Co., Erie, manufacturer of hydraulic and rubber mill machinery, has purchased the plant and equipment of the Nagle Corliss Engine Works and takes possession Sept. 1. The company is working 100 per cent Government work and has a big contract for shell and powder presses. It will move its present equipment to a new plant of which the foundry is 125 x 250 ft. and main machine shop 130 x 232 ft. with balcony 60 x 250 ft. The old plant on Raspberry Street including real estate and buildings, 120 x 182 ft., including cranes and heating system, is for sale.

The Erie Crucible Steel Co., including F. C. Kirkpatrick, Titusville and F. H. Payne, Erie, has bought 10 acres on the Eastside, Erie, and will build a tool steel plant. The Lackawanna Bridge Co. has the contract for the building. The plant will be in operation in 90 days.

Will Build Warehouse

PITTSBURGH, Aug. 27—(*By Wire*).—Some time ago, the Jones & Laughlin Steel Co., Pittsburgh, bought 47 acres at Forty-seventh Street and Western Avenue, Chicago. Reports that the company would build a steel plant on the property are incorrect. The site will be used for the building of a large warehouse, but for the present only two bays of the proposed warehouse will be erected.

OBITUARY

CHARLES E. PENNOCK, one of the oldest citizens of Coatesville, Pa., died at his home in that city, Aug. 7, in his ninety-third year. He was the last of the pioneer ironmasters of Chester County, Pa. He began his business career with his father, William Pennock, at the old Pine Grove Works on the Octoraro Creek, in Lancaster county, was employed later at the Laurel Iron Works, and in 1853 with his brother, Joseph, purchased the Falley Iron Works property on the Brandywine Creek, one mile north of Coatesville, a small mill operated by water power. There they continued the manufacture of iron plates under the firm name of C. E. Pennock & Co., until 1887, making a special grade of charcoal flange iron, well known in the trade as the "Eureka" brand. In that mill were rolled the iron plates which clad the U. S. gunboat Monitor for the famous fight with the Merrimac at Hampton Roads in the Civil War. This mill was later rebuilt and enlarged for steam power, also three other mills constructed, one having rolls 110 in. wide, being the largest mill in the country at that time for the rolling of iron plates. These works are at present part of the extensive plant of the Midvale Steel & Ordnance Co., Coatesville. He was a staunch Republican all his life. He possessed to a remarkable degree at the time of his death his mental qualities and took deep interest in the vast development of the iron and steel industry of the present day.

GEORGE WILLIAM DICKIE, naval architect and marine engineer and builder of the United States battleship *Oregon*, which was rushed around Cape Horn from the Pacific Ocean in the Spanish-American War in 1898, died suddenly Aug. 17 at his home, Lakeside Villa, Oakland, Cal. He was born in Scotland, in 1844. In 1869 he came to the United States and was employed as an engineer for the Risdon Iron Works, San Francisco, and in 1883, when engineer-in-chief of the Risdon works, he was made director and manager of the newly formed Union Iron Works Co. During his connection with this company, 23 war vessels and about 60 merchant vessels were built, in addition to other large undertakings. Since 1905 Mr. Dickie had been engaged in consulting work.

BENJAMIN H. OGDEN died at his home in Stamford, Conn., recently, after a prolonged illness. Mr. Ogden, who had just completed his fiftieth year, had been connected with a number of large foundries, and was well known as a consulting foundryman. He had been connected with the following plants: Brandt Stove Works, Milwaukee; Pierce, Butler & Pierce; Abendroth Bros., Port Chester, N. Y.; Garwood Foundry & Machine Co., New Jersey; A. S. Cameron Pump Co.; Otis Elevator Co., Yonkers, N. Y., and John Davenport Co., Stamford, Conn.

HARRY WOOD MCCANDLESS, vice-president, Weir Frog Co., Cincinnati, died at his summer home at Torch Lake, Mich., Aug. 20, following an attack of heart trouble. He was born at Washington C. H., Ohio, in 1868, and went to Cincinnati 30 years ago, entering the employ of the J. A. Fay & Egan Co.

JOHN G. WRIGHT, New York manager of the Hooven-Owens-Rentschler Co., Hamilton, Ohio, died Aug. 25 at his home in White Plains, N. Y., following an illness of a few days, with pneumonia.

PATRICK HENRY MCNAMEE, secretary and part owner of the Commercial Iron Foundry, St. Louis, died last week at the age of 69 years, after a brief illness.

JULIUS M. FOOTE, president of Strieby & Foote Co., manufacturer of drop forgings at Newark, N. J., died at Los Angeles, Cal., Aug. 25, age 75 years.

SIR GEORGE BENJAMIN SINGLEY, ironmaster, died Aug. 19, according to a cablegram to THE IRON AGE from London, England.

Fixed Price of Aluminum Unchanged

WASHINGTON, Aug. 27.—The maximum base price, fixed by the Government for aluminum, will remain unchanged at 33c. per lb. until March 1 of next year. After an investigation by the Price Fixing Committee of the War Industries Board and the Federal Trade Commission of the present cost production in the industry, an agreement to that effect was reached between the committee and representatives of the producers. This was approved by the President, and the War Industries Board thereupon announced that the maximum base price for aluminum, of 33c. per lb. f.o.b. United States producing plants, for 50 tons and over, of ingot of 98 to 99 per cent, will be continued until March 1, 1919. Differentials for sheet, rod and wire and differentials for quantity, for grade and for alloys will remain those approved by the Price Fixing Committee of the War Industries Board as effective from June 1, 1918. Copies of the price list including differentials may be obtained upon application to the Non-Ferrous Metals Section of the War Industries Board.

These prices, says the announcement of the board, will be effective on deliveries made during the period from Sept. 1, 1918, to March 1, 1919, on contracts made during said period and furthermore, the new prices will be effective on deliveries made during said period on existing contracts which specify that the price shall be that in force at the time of delivery. Deliveries made during the period of Sept. 1, 1918, to March 1, 1919, on other contracts shall be at the price stated in such contracts, except that on existing "direct and indirect Government contracts" containing a provision that refund is to be made of the difference between the price stated in the contract and the "Government fixed price, if, as and when made," such difference shall be refunded on deliveries made during the period from Sept. 1, 1918, to March 1, 1919, on presentation of proper proof that the purchasing Government gets the benefit of the refund.

The conditions as to production, wages, sales and distribution are as stipulated in the original agreement.

Unusual Method of Speeding Production

An interesting method of speeding production was recently conceived by the president of the Dauch Mfg. Co., maker of the Sandusky tractor, Sandusky, Ohio. Though swamped with orders, its output was not proportionate to the capacity of its manufacturing equipment, owing to the slow supply of some of the parts going into the tractors. Mr. Dauch then thought of the expedient of inviting an executive of each of the main supplying companies to become a member of a Dauch executive board, this to include also engineers of the Dauch company. Accordingly a board of ten or twelve men has been established and on this there are representatives of the Timken-Detroit Axle Co., which furnishes the worm drive for the tractor; the Van Dorn & Dutton Co., which supplies the large gears, and the Farrell-Cheek Steel Foundry Co., which supplies the steel castings for the tractor.

The new Liberty plant of the Bethlehem Shipbuilding Corporation at Alameda, Cal., will be one of the largest shipyards in the United States. It will be twice the size of the Victory plant of the Bethlehem Shipbuilding Corporation at Squantum, Mass., and will involve twice the expenditure. The plant, which will have 10 shipways, will cover more than a third of a square mile and from 3,000,000 to 4,000,000 yds. of dredging will be necessary. Large vessels will be constructed, contracts for which have already been awarded by the United States Shipping Board. Contract for the construction of the plant was awarded to the Aberthaw Construction Co., Boston, which recently completed the Victory plant in record time. The formal opening of the work occurred on Aug. 13 when the first pile was driven. A celebration of the event was held and the mayor of Alameda and others delivered addresses. Representatives of labor pledged their hearty support. About 15,000 men will eventually be employed.

Work Stand of All-Steel Construction

A factory work stand which is made of steel throughout has been placed on the market by the New Britain Machine Co., New Britain, Conn. The two legs of either end of the stand are formed by a single steel angle section, which is continued across the top

The Use of a Few Parts Characterizes a New All-Steel Work Stand for Factory Use and Facilitates Assembling

to give rigidity and finish. The trays, which measure 16 x 26 in., have welded gussets at the corners for bolting to the uprights and a 2-in. flange along the sides and back also strengthens them. A formed hem which supplies a smooth finish to the edge of the tray as well as reinforcing it is turned down at the front to give convenient access to the trays and facilitate cleaning.

The stands are supplied with two or three trays and with or without a drawer. A hem of triple thickness is provided around the upper edge of the drawer and all the joints are welded. The slide ways are welded to the underside of the top tray, an arrangement which is relied upon to give a smooth movement of the drawer free from binding or cramping. A cylinder lock with two individual keys is provided, and if desired the drawers may be master keyed. The stands are shipped knocked down.

Rule Relaxed as to Coal

WASHINGTON, Aug. 27.—Following the War Department's relaxation of the strict application of the "contingent fee clause" in Government contracts, the Fuel Administration has now received a ruling from the Attorney General which will result in the adoption of a similar policy by that organization. The ruling of the Attorney General came in answer to a series of interrogatories submitted to the Department of Justice by the Fuel Administration.

Of 47,243 soldiers in the United States Army training detachments being given vocational training for overseas service, 17,429 are being taught auto mechanics, 5450 auto driving, 2137 blacksmithing, 4506 carpentry, 2969 electricians, 1251 gas engine, 1130 general mechanics, 2054 machinists, 3724 radio operation, and 996 sheet metal work. The other work varies from that of wheelwrights to cobblers and locomotive engineers. Under the direction of the Committee on Education and Special Training of the War Department the training is conducted in two-month courses.

The New Jersey Zinc Co., operating at Franklin, N. J., has acquired Lake Wawayanda and surrounding territory from the New York Transit Co. The tract covers about 6000 acres, and will be used for water supply and other operating purposes.

Preparing New List of Essential Industries

War Industries Board Is at Work and District of Columbia Board Announces Policy—Situation Is Declared Acute

WASHINGTON, Aug. 27.—Announcement has been made by the War Industries Board that a new list of "essential industries" is in course of preparation. The schedule is being worked out by the Priorities Commission. It will enumerate approximately 65 industries, by classes, and will thus be about twice as long as the list issued in April, which enumerated 32.

The amplification, it is announced, is the result of a growing circle of war needs as well as a stricter definition of essential civilian needs.

The new list will be one of the most important items in the nation's war program, for it is to be the controlling key to a long series of governmental limitations. It will be the chief factor in the Government's machinery to determine the "essentiality" of any industry. It will also mark the deciding line for the War Department's "work or fight" regulations in the application of the new draft.

The mere inclusion of an industry in the forthcoming list will of itself be no guaranty that it will receive either material, fuel or labor. It will merely give the industry standing in its efforts to secure these. It must still demonstrate the need for each requirement to the proper Government authorities in order to secure its allotments. But if it is not in these lists, there will be no need for the company to make any presentation of requirements—it will get none.

Six Bases of Industry

The formulation of the list is announced to be under way for the purpose of determining the use of the six bases of industry, which the War Industries Board enumerates as follows: Material, facilities, fuel, transportation, labor, capital.

This announcement foreshadows two important additions to the work of the War Industries Board. So far, the first two items have been handled by the Priorities Division of the board as one item—supplies. But because of the decided increase in the plans of the War Industries Board for the conversion of existing plants to more essential war purposes and of the need of extending existing plants, the board will have a separate division to handle these requirements under the head of "Facilities."

In the list of priority items, these two are represented directly by the War Industries Board. Representatives of the fuel, railroad and labor administrations also participate in all matters dealing with priorities.

Capital Included

The second important change promised by this listing is the inclusion of capital in the consideration of priority questions. It is likely that a member of the War Finance Corporation will be made a member of the Priorities Commission. But the co-operation of the War Industries Board and the War Finance Corporation is not to be limited to questions of increased production. Plans are under way for the use of the financing powers of the Government to aid industries which are to be chloroformed by being put on the non-essential lists, and which must have financial help, if they are to survive the war at all. As it will be of great importance that these companies be alive when the war ends and a normal industrial life can be resumed, the Government, through the War Industries Board, will try to give this help.

The last week has made the question of curtailing civilian industries exceedingly acute. The various conferences that have been held in Washington have emphasized the importance of making radical cuts into the operations of less essential and non-essential industries. The steel shortage comes first in this list of compelling forces. Then comes coal, the shortage of which is largely responsible for the insufficient output of steel. Transportation has not been up to requirements, and the coming fall and winter promise no relief. More vital than this is the great shortage of labor, both skilled and unskilled. Of the latter, the Department of Labor reports a shortage of 1,000,000 men, and heroic recruiting efforts have failed to fill the quotas required in most of the States. To make matters worse, the new draft has threatened an even greater depletion of industries, and the War Industries Board has been conferring with the War Department to prevent the drafting of essential men. In this, it is promised every co-operation.

Necessity for Sacrifice

It is likely that the War Industries Board, aided by other Government agencies, will begin a more vigorous campaign to impress upon the public the necessity for making real war sacrifices. The deprivations which have figured in our civilian war participation in the past are not sufficient to meet the restrictions which will be necessary to carry out the Government's war program. New limitations will be announced almost daily in various industries and other lines of endeavor, and the public will have to make the best of it, and that smilingly.

In connection with proposed issuance of a list of essential industries by the War Industries Board, the issuance of a "non-essential" list by the Community Labor Board of the United States Employment Service for the District of Columbia is of particular interest. The list was issued for the purpose of expediting the transfer of men from these "industries" to essential lines to meet the labor shortage in the district. The board has proclaimed the following as "industries engaged in non-essential war work":

Auto industry accessories.
Drivers of pleasure cars—cleaning, repairing and delivery of same.
Sight seeing cars.
Auto trucks engaged in work other than fuel or Government work.
Teaming other than delivery of products for war work.
Bath and barber shop attendants.
Bowling alleys, billiard and pool rooms.
Bottlers and bottle supplies.
Candy manufacturers, cigars and tobacco.
Cleaners and dyers.
Clubs.
Confectioners and delicatessen establishments.
Builders and contractors not engaged in the erection of structures for war work.
Dancing academies.
Mercantile stores.
Florists.
Fruit stands.
Junk dealers.
Livery and sales stables.
Pawn brokers.
Peanut venders and establishments.
Shoe shining shops.
Window cleaners.
Soft drink establishments.
Soda fountain supplies.

It may be necessary, says the announcement of the board, to add to this list from time to time.

A valuable pamphlet, "Chromite," has been issued by the *Mining and Scientific Press*, San Francisco, Cal., which gives much information in a concise form regarding its source, uses, markets, consumers, etc. The matter has been compiled by Albert Burch and Samuel H. Dobear. A brief portion on the sampling and analysis of chromite or chrome ore by Abbot A. Hanks concludes the pamphlet.

Child and Convict Labor

WASHINGTON, Aug. 27.—Although the War Labor Policies Board has so far declined to consider suggestions for the importation of labor—except minor items of agricultural labor from Mexico—it announced a decision last week in favor of the use of prison labor on Government work during the war. The decision was put in the form of the following resolution, made public by Chairman Felix Frankfurter of the Board:

"RESOLVED, That the War Labor Policies Board recognizes the urgent necessity for consideration by Congress of such legislation as will make possible the employment of prison labor for the period of the war for Government work under agreement between the Federal Government and the State or sub-divisions of the State of any governmental department, and not under contract directly or indirectly with private contractors; provided that such work is carried out under working conditions insuring that compensation and hours of labor shall be based upon the standard hours and wages prevailing in the vicinity in which the institution is located, with permission to deduct the pro rata cost of maintenance from the compensation."

The War Labor Policies Board has also sent to all Government departments a new clause which is to be inserted in all contracts and which is to require complete compliance with State laws concerning convict labor and child labor. To secure State cooperation in the enforcement of this clause as well as in the enforcement of State labor laws on Government work, Chairman Frankfurter sent the following letter to the Governor of each State, saying in part:

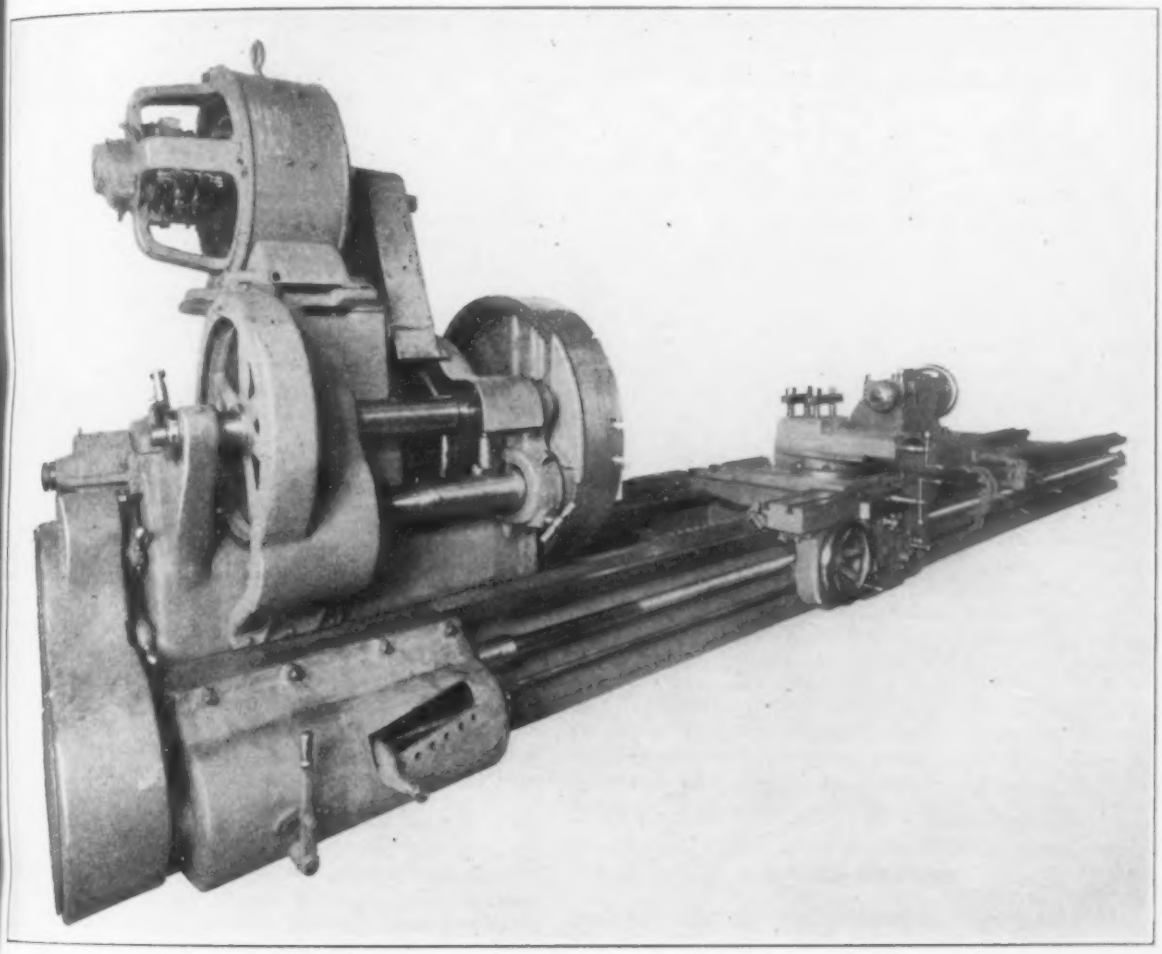
The Federal Government in its activities concerned with industrial relations is brought into increasing contact with State agencies. A more intimate understanding of their common purposes in the enforcement of industrial standards is therefore essential. To that end a conference of State agencies is being called to meet in Washington, Sept. 30 and Oct. 1.

I confidently count on you to help toward achieving the important end of this conference by sending a representative from the department named.

A 50-In. Gun and Propeller Shaft Lathe

A lathe with a swing of 50 in., which is especially adapted for propeller shaft and gun work, has been placed on the market by the Pittsburgh Machine Tool Co., Braddock, Pa. Either belt or motor driven units can be supplied with any length of bed and a quick traverse is provided to save time in reversing the carriage.

The bearings for the headstock spindle are very large, the front one being 8 in. in diameter and 12 in. long. A quick change feed of simple construction is provided and is driven by a splined lead screw. The control in the motor-driven lathe is located at the right side of the carriage and either an adjustable-speed direct-current or a single-speed alternating-current motor is used. In the latter case the speed change gearbox to give the necessary variation is mounted directly over the headstock.



Forgings for Guns and Propeller Shafts Are Handled in a New 50-in. Motor-Driven Lathe Which Can Be Provided with a Special Motor-Operated Quick Traverse for the Carriage

The carriage is very long with a wide bridge and long bearings and has the conventional double-plate type of apron. In this way the studs for the gears in the apron have bearings at both ends. The gears in the apron are of steel with exceptionally wide faces.

The tailstock is of stiff construction and a pawl engaging a rack which is cast in the center of the bed is supplied to assist the clamping mechanism in holding the tailstock in place.

The Briscoe Motor Corporation, Jackson, Mich., is building two additions to its plant, one 200 x 200 ft. and the other 90 x 100 ft. These buildings will be used for the manufacture of munitions. Women are now being employed in very large numbers in the plants of the Briscoe Motor Corporation, nearly 500 having been taken on in the past few weeks.

INDUSTRIAL FAILURE

Features of the Senate Committee Report on Aircraft Manufacture

WASHINGTON, D. C., Aug. 27.—The failure of the first year of our aircraft program reported to the United States Senate by the Committee on Military Affairs is of particular interest to the industries of the United States because it is, first of all, according to the details of the committee report, an industrial failure rather than a political or military one. A substantial part of the first appropriation of $640,000,000 made by Congress, July 24, 1917, for the aircraft program was practically wasted, says the committee report.

Causes of Failure

The committee sets forth its opinion that the disappointing results were chiefly due to three causes:

1. That the airplane program was largely placed in the control of great automobile and other manufacturers, who were ignorant of aeronautical problems.

2. These manufacturers undertook the impossible task of creating a motor which could be adapted to all classes of flying craft. It is not too much to say that our airplane program has been largely subordinated to the Liberty motor.

3. We failed at the beginning of the war to adopt the commonsense course of producing the most approved types of European machines in as great numbers as possible. This should have been carried on coincident with the production of the Liberty motor. This sound policy has very recently, but after a lamentable lapse of time, been adopted.

"The mistakes and errors referred to," continues the committee report, "would probably have been largely avoided if the aircraft program had been under the control of one man, assisted by skilled aeronautical engineers and practical flyers to design and test our machines, with production made subordinate to them.

"This brief summary is not to be taken as a wholesale condemnation of our aircraft program. Much has been accomplished. The committee is glad to report that while it believes there are yet many things to be remedied, nevertheless we are approaching a period when quantity production of planes may soon be hoped for."

Experience Ignored

The committee lays particular stress upon the fact that the Aircraft Board seemed to ignore much of the experience which had been gained by Great Britain, France and Italy in the first three years of the war. It points out that Italy owes much of its unquestioned aircraft success to the fact that that Government began with a careful study of the aerial warfare developed on the French front. Instead of making independent experiments, the Italian engineers selected the most efficient types of French fighting planes and immediately put them into production under the supervision of skilled French artificers. At the same time Italy began the development of airplanes on her own account. Her armies were, therefore, rapidly equipped with an excellent service after supplemented by machines equally effective, but of Italian design and driven by Italian motors.

The committee declares it cannot understand why the Aircraft Board did not adopt "this obviously essential policy." It reports the work done by a commission of the Signal Corps to the front which recommended the production of three English, two French and one Italian plane, but the recommendation was not heeded.

The same uncertain course was steered in the handling of the Caproni and Handley-Page machines and with the same result. No Caproni plane has yet reached the front. Twenty Handley-Page machines have so far been embarked.

Much of the report is devoted to the work of the famous Liberty motor. Concerning this the committee says:

The Liberty 12-cylinder engine is an excellent one for the heavier planes and certain other purposes. Its weight of 825 lb. and its 400 hp. makes it too heavy and too powerful for the lighter types. It is not yet perfect but it is improving under repeated tests and experiments which disclose defects for elimination and suggest changes and readjustment of its parts. It is now in quantity production more than 4,000 having been delivered, and is approved by our allies, who are anxious to obtain more of them than we can at present supply.

The report also makes serious criticism of the past methods of airplane inspection. The commercial features of the airplane industry, as handled by the Aircraft Board, also come in for considerable criticism. It complains particularly because certain plane manufacturers organized prior to the war have been unable to obtain contracts, while new concerns have been practically organized since the war and one given enormous contracts before the factories were completed.

The report emphasized the need for putting the entire aircraft situation under the control of one man and renews the previous suggestion that he be given a Cabinet post, so that this arm of the service will rank with the Army and Navy. It also suggests a commission of engineers and pilots for continual observation at the front; an acceleration of quantity production of planes as well as motors; the encouragement of the inventive genius of the nation for new designs and ample protection for their patents; and a reduction of some of the profits made by contractors. The committee also declares that the Government should not pay for planes or engines rejected because of defective construction.

Woodward Steel Plant Plans

BIRMINGHAM, ALA., Aug. 26.—Woodward Iron Co. officials state that the matter of the steel works which it is proposed to build at their furnace plant without Government aid has progressed no further than the recommendation of J. L. Replogle, Director of Steel Supply, that the War Industries Board countenance its building and the beginning of making estimates on the part of the Woodward company itself. It will be a month before the estimates are submitted. The general schedule calls for an open-hearth plant with plate mills to roll ship plates. There has been some talk of a water supply, but this was not raised by the Government and will not cut any figure, because, no matter how great a supply is needed, it is available by means of two nearby rivers, pumps and piping and in case a separate and new source of water supply is needed, it could be made available long before the mills were ready for operation.

John J. Shannon, general manager of the Woodward company, has resigned. Frank Crockard, former general manager of the Tennessee Coal, Iron & Railroad Co., and later president of the Nova Scotia Steel & Coal Co., is expected to come to the company in a high capacity in the near future.

The Tennessee company officials make no statement with regard to completion and operation of the Fairfield mills and the Mobile steel shipyards. The impression now is that both works will be in operation by the beginning of the year and will start as a whole simultaneously.

Goggles are discussed in the latest issue of the series of bulletins on safe practices issued by the National Safety Council, Chicago. This gives in substance specifications for different types of goggles as for welding purposes, for chipping purposes and for use around open-hearth furnaces.

At a recent annual meeting of the stockholders of the Weidig Foundry Co., Zanesville, Ohio, the following directors were selected to serve during the ensuing year: W. W. Harper, W. M. Bateman, Frank B. Armstrong, L. T. Weidig, J. A. Leroy, T. M. Lynn and John M. Schofield.

Machinery Markets and News of the Works

BALDWIN LIST OUT

Many Tools Wanted for Chicago Plant

Airplane Program Expanding—Willys-Overland Co. to Make Liberty Motors

The largest machine-tool list ever issued in this country, totaling 1049 tools, has been sent out by the Baldwin Locomotive Works, Philadelphia, for its new locomotive works to be built in Chicago. Crane requirements will also be very large. Announcement that this plant probably would be built was made in THE IRON AGE of July 11.

Aside from this list, the principal development of interest in machine-tool markets is buying for airplane motor plants. The latest to receive a contract is the Willys-Overland Co., Toledo, Ohio, which will make 5000 Liberty airplane motors and 3000 Liberty tractor motors of 12 and 8 cylinders. The tractor motors are to be assembled from airplane motor parts which fail to pass inspection. The Pierce-Arrow Motor Car Co., Buffalo, has bought additional equipment for the manufacture of Hispano-Suiza motors. The Locomobile Co. of America, Bridgeport, Conn., placed a substantial order last week for equipping a new shop which will make Liberty tank motors, these also to be assembled from rejected parts of airplane motors. The contract for the Trego Motor Corporation, New Haven, Conn., has been transferred to the Locomobile Co. The Union Switch & Signal Co., Pittsburgh, is buying tools to increase its output of Lerhone airplane motors. The H. H. Franklin Mfg. Co., Syracuse, N. Y., has received a contract from the Wright-Martin Aircraft Corporation for crankshafts and is buying new equipment for the manufacture of motor crankshafts, and new equipment is being purchased.

This expansion of the airplane motor program has been of unusual interest in view of the recent report of the sub-committee of the Senate Committee on Military Affairs on the failure of the airplane program. Another large motor contract is said to be pending. Repair parts for airplane motors must also be manufactured and undoubtedly several automobile manufacturers will share in these orders.

Being denied steel, automobile manufacturers are said to be making no production plans beyond Jan. 1, 1919, and will seek Government orders. The Willys-Overland Co. now has a diversity of war work—motors, gun carriages and shells. The Velie Motor Vehicle Co., Moline, Ill., has received a contract for tractors. The Ford Motor Co., Detroit, will make "whippets," or small tanks for use in France. Another Detroit automobile plant is turning out large fighting tanks.

Government locomotive crane requirements for a year have been pooled and orders for 600 cranes have been allocated by the Crane Section, War Industries Board. With other orders on hand output of the several plants is thus taken over until next March. The locomotive crane plants of the country have a monthly capacity of 108 cranes.

The growing shortage of machine tools has been the subject of recent conferences in Washington. Plans have been worked out whereby a greater number of tool plants will eliminate certain types and sizes of tools, concentrating on those in most urgent need.

There is a diversity of small inquiries in the machine-tool markets, but large-lot inquiries, particularly in the East, are becoming less frequent. Crane inquiry has likewise fallen off and a few of the smaller crane companies are anxious for business.

New York

NEW YORK, Aug. 27.

Expansion of the airplane and tractor motor-building program furnishes the chief topic of interest in the machine-tool markets, coming, as it does, coincident with the report of the sub-committee of the Senate Military Affairs Committee on the failure of the airplane plans to measure up to expectations.

The Willys-Overland Co., Toledo, Ohio, last week placed large orders for new equipment for making Liberty motors for airplanes and tanks, having received a contract for 5000 Liberty airplane motors and 3000 Liberty tank motors. The tank motors are to be assembled from parts which do not pass the rigid requirements of airplane motors.

The Pierce-Arrow Motor Car Co., Buffalo, has added to its recent purchases of equipment for the manufacture of Hispano-Suiza motors. The Union Switch & Signal Co., Pittsburgh, is buying tools for increasing its output of Lerhone airplane motors. The H. H. Franklin Mfg. Co., Syracuse, N. Y., has received a contract from the Wright-Martin Aircraft Corporation for crankshafts and is buying tools, particularly turret lathes and drills. Grinders were recently purchased.

The Locomobile Co. of America, Bridgeport, Conn., last week placed orders for a part of the equipment required for a new shop, which will be devoted to the manufacture of Liberty motors for tanks. The Locomobile company has taken over the contract for the Trego Motor Corporation, New Haven, Conn. Parts of Liberty airplane motors which do not pass inspection will be utilized in the manufacture of tank motors at this plant.

Other contracts for airplane motors are under consideration at Washington, and developments may be expected shortly. The facilities of two large automobile factories have recently been inspected, but no action was taken. Manufacturers of passenger automobiles are said to be making no production plans for next year, on account of the shortage of steel and the discouragement of passenger-car building by the War Industries Board. So doubtless many of them will soon take on other Government work. One of the large automobile factories in Detroit is now making fighting tanks, others are working on shells, while the Willys-Overland Co., Toledo, Ohio, probably holds the record for diversity of Government work, having contracts for two types of motors, gun carriages and shells. Contracts will soon be placed for repair parts for airplane motors, and doubtless automobile manufacturers will come in for a large share of these orders.

Several conferences have been held in Washington, to which machine-tool men have been invited, to discuss the growing shortage of machinery. At present deliveries on grinders, certain types of lathes and steam and hydraulic hammers are so far off as to hamper plans of the various Government departments. Machine-tool manufacturers are being urged to eliminate types and sizes of machines for which the demand is not extremely urgent and concentrate on those most needed. One company making grinders, for example, is devoting almost its whole effort on crankshaft and cam grinders.

Government requirements of locomotive cranes for the next year will be at least 600, and orders for approximately

this number have been allocated by the Crane Section of the War Industries Board to the locomotive crane builders. These orders have put off delivery dates for other than Government work until next March. Locomotive crane companies are not making quotations to private concerns unless they can procure priority of A-5 or better. The Government departments co-operating in the large crane order are the War and Navy departments, Emergency Fleet Corporation, Railroad Administration and the Director of Military Railways.

Machine-tool inquiry in New York the past week has been comparatively light. The principal orders placed were those of the Locomobile Co. of America, Bridgeport, Conn., and the New Britain Machine Co., New Britain, Conn. The Torpedo Station at Newport, R. I., will soon require about $150,000 worth of tools. The Graphoscope Development Co., 49 Mechanic Street, Newark, is buying equipment through the D. Nast Machinery Co., Philadelphia. The company is making moving picture apparatus for the Government. The Lionel Mfg. Co., Irvington, N. J., is buying a few tools for making sights. The New York Central Railroad is buying a small list. The Stewart Hartshorn Co., Newark, has a Government contract for airplane stayrods and is purchasing a few tools.

Crane inquiry has fallen off. The Wilputte Coke Oven Corporation, 469 Fifth Avenue, New York, is inquiring for two 10-ton cranes of 30-ft. and 47-ft. 6-in. span, for the Wisconsin Steel Co. The Watertown Arsenal, Watertown, Mass., wants a 10-ton crane, 58-ft. span. The Pennsylvania Railroad has inquired for a 5-ton grab-bucket crane, 46-ft. 4-in. span. The American Radiator Co., Buffalo, will buy a 15-ton crane of 17-ft. span. The Erie Railroad is in the market for a single-legged gantry crane, 5-ton capacity, for Susquehanna, Pa. The Air Nitrates Corporation, New York, requires 20 chain hoists. At this writing, it has not closed for 22 cranes for which it recently inquired. The Bethlehem Shipbuilding Corporation has awarded to the Heyl & Patterson Co., Pittsburgh, an order for three traveling hammerhead cranes for its new shipyard at Alameda, Cal. The cranes are to have a capacity of 30 tons at an 85-ft. radius and of 20 tons at an 115-ft. radius. The Shepard Electric Crane & Hoist Co. received an order for three small cranes from the Bethlehem corporation.

The Braden Copper Co., 120 Broadway, New York, notified a large number of manufacturers last week that it desired to cancel orders for millions of dollars worth of equipment, which has been bought for shipment to Chile. Shortage of shipping space now prevents shipment. In all probability, at least a part of the equipment will be accepted and placed in storage until the shipping situation improves. In many cases, the equipment ordered was about ready for shipment from the factories.

The River Press & Machinery Co., New York, has been incorporated with a capital of $10,000 to manufacture machinery. W. Kopp, H. A. Wilson and H. T. Munch, 345 Jamaica Avenue, Brooklyn, are the incorporators.

Brown & Sharpe of New York, Inc., New York, has been incorporated with a capital of $10,000 to manufacture machinery and tools. R. Noble, P. E. Good and S. M. Teeter, 516 West 162d Street, are the incorporators.

The D. E. Waters Safety Latch Co., Hempstead, L. I., has been incorporated with a capital of $30,000 to manufacture safety latches, etc. J. J. Lynch, J. Johnson and J. A. Mooney, 100 Fenimore Street, Brooklyn, are the incorporators.

The International Thread Gage Co., New York, has been incorporated in Delaware with a capital of $1,000,000 to manufacture screws, gages and machinery parts. Paul S. Smith, Samuel B. Howard and Arthur W. Britton, 28 Nassau Street, are the incorporators.

The Welin Marine Equipment Co., 50 East Forty-second Street, New York, manufacturer of motor boats, etc., has awarded a contract to C. G. Flygare, 405 Lexington Avenue, for a one-story addition, 75 x 200 ft., to its works on Vernon Avenue, Long Island City.

The Steel Industries Corporation, New York, has been incorporated with a capital of $5,000 to manufacture steel products. G. D. Zahm, D. N. Graves and E. Behrens, 111 South Ninth Street, are the incorporators.

The High Ground Iron Works, 299 Scholes Street, Brooklyn, will build a one-story addition, 50 x 100 ft.

The Long Island Foundry Co., Long Island City, has been incorporated with a capital of $50,000 to manufacture castings, etc. G. Buchanan, T. F. McMahon and G. L. Stuebner of the G. L. Stuebner Iron Works, Long Island City, are the incorporators.

The Richmond Screw Anchor Co., Inc., Yonkers, N. Y., has been incorporated with a capital of $10,000 to manufacture anchors, etc. F. R. Richmond, D. Miner and A. B. Morrison, 140 Nassau Street, New York, are the incorporators.

The Swan Corporation, New York, has been incorporated with a capital of $50,000 to manufacture cutlery and other specialties. G. H. Moessner, I. L. Rothstein and C. Graf, 1325 Plimpton Avenue, are the incorporators.

E. Weber, 7 La Grange Street, Brooklyn, will make extensions and improvements in his pattern shop on Maujer Street, to cost about $18,000.

The J. K. Welding Works, New York, has been incorporated with a nominal capital of $5,000. T. T. Moorris, J. A. Klevensky and M. Negri, 258 West Fifty-fifth Street, are the incorporators.

The W. A. Baum Co., Inc., New York, has been incorporated with a capital of $100,000 to manufacture surgical instruments, etc. D. Munsell, H. C. Rasmussen and G. Reiser, 1603 Avenue A, are the incorporators.

The Wright-Martin Aircraft Corporation, Starr and Borden avenues, Long Island City, has filed plans for a one-story brick addition, 109 x 499 ft., to cost about $400,000.

The Holger Products Mfg. Co., Brooklyn, has been incorporated with a capital of $10,000 to manufacture automobile parts, devices, etc. R. Schreifels, H. S. and J. Peterson, Astoria, L. I., are the incorporators.

The John Polachek Bronze & Iron Co., 480 Hancock Street, Long Island City, has awarded a contract to Christopher Jensen & Son, 178 Main Street, Astoria, L. I., for a new foundry, to cost about $35,000.

The Autophor Co. of New York, Inc., New York, has been incorporated with a nominal capital of $5,000 to manufacture signal devices. M. Grossman, J. Israel and F. W. Alger, 601 West 184th Street, are the incorporators.

The Cameron Machine Co., 61 Poplar Street, Brooklyn, has had plans prepared for an addition to its machine shop on Hicks Street. It will also make improvements and alterations in the existing structure. Property on Hicks Street was recently acquired for a consideration of $13,000, to be used for expansion.

The Bureau of Yards and Docks, Washington, D. C., has had plans prepared for the construction of a new magazine building at Bay Shore, L. I., to cost about $25,000. A new hydrocylinder works will also be erected at Rockaway to cost $40,000. Work is under way on an extension to the naval air station at Rockaway to cost about $175,000.

The two-story, reinforced-concrete shop addition to be erected at the plant of the Victor R. Browning Co., Cleveland, Ohio, at its works, Twenty-second Street and Third Avenue, Long Island City, will cost about $30,000. It is working on the production of bases for naval guns for the Government.

Eggleston Brothers & Co., Inc., New York, has been incorporated with a capital of $200,000 to manufacture iron and steel specialties. L. A. Stone, A. H. Bragg and E. C. Sperry, 30 Hamilton Terrace, are the incorporators.

The new buildings to be erected by the Ramberg Iron Works, Inc., Pioneer Street, Brooklyn, will consist of machine shop, forge and blacksmith works, boiler shop, carpenter shop and other structures. The plant will be located at Dykmann and Walcott streets, and will be used as a ship repair works. Plans are being prepared.

The General Motors Corporation, Detroit, Mich., is said to have a large interest in the Doehler Die Casting Co., Ninth and Huntington streets, Brooklyn, with plants also at Newark, N. J., and Toledo, Ohio. It is understood that the foundry now in course of construction at Flint, Mich., for the production of alumium castings, will be operated by the General Motors Corporation in conjunction with the Doehler company, which has specialized in the manufacture of die castings of aluminum, brass, bronze and other materials. The company recently increased its capital from $500,000 to $1,000,000 and is building a seven-story, reinforced-concrete addition to its Brooklyn works, 90 x 105 ft., to cost $175,000.

The William P. Gary Mfg. Co., Totowa, Paterson, N. J., has been incorporated with a capital of $100,000 to manufacture mechanical toys, etc. William P. Gary and E. Hamilton, Totowa, are the incorporators.

The Jackson Sheffield Co., Paterson, N. J., has been incorporated with a capital of $100,000 to manufacture motor vehicles, parts, etc. Charles E. Jackson, E. and E. R. Sheffield, Paterson, are the incorporators.

The R. H. H. Steel Laundry Co., 138 Oakland Avenue, Jersey City, N. J., will build a four-story addition to its foundry, 30 x 75 ft., at Oakland and St. Paul's avenues.

The New Jersey Machine Corporation, Hoboken, N. J., has been incorporated with a capital of $50,000 to manufacture machinery. Morris Galibert, Martin Feibuck, Sea Cliff, Long Island, and William B. Devoe, Upper Montclair, N. J., are the incorporators.

The Atlantic Nail & Wire Co., Newark, N. J., which acquired the former distributing plant of the Dubois Brewing Co., Jelliff Avenue, is the recently incorporated company of the same name organized at New York with a capital of $75,000 by N. S. Werling and J. M. Marks, 2023 Seventh Avenue. The company will remodel the structure for the manufacture of nails and other wire specialties.

Buffalo

BUFFALO, Aug. 26.

The Lumen Bearing Co., Buffalo, has filed plans for an addition to its foundry at Sycamore and Lothrop streets and the New York Central Belt Line Railroad, to cost $15,000.

The city of Geneva, N. Y., will build a boiler house and storeroom to cost $15,000. J. W. Brennan is city engineer.

The Department of Public Works, Syracuse, N. Y., is having plans prepared for a garbage reduction plant to be constructed at an estimated cost of $200,000.

The Buffalo Specialty Co., Buffalo, has taken out a permit for a two-story addition to its plant at Northland Avenue and the New York Central Belt Line to cost $6,500.

The Prest-O-Lite Co., Inc., Indianapolis and New York, has purchased 8½ acres on the South Buffalo Terminal properties, Buffalo, and is having plans prepared for the erection of four buildings.

The New York Car Wheel Co., Buffalo, M. R. Cooley, president, is taking bids for a one-story addition, 58 x 158 ft., to its plant at the New York Central Railroad, Erie Canal and Forest and Bird Avenues.

The Merchants Despatch Transportation Co., Rochester, N. Y., D. S. West, superintendent, is having plans prepared for a new car building plant, 150 x 1000 ft., one story, to be erected at East Rochester, at an estimated cost of $500,000.

The city of Watertown, N. Y., Isaac R. Breen, president Board of Public Works, City Hall, has had plans prepared for a municipal electric light plant to cost about $300,000.

Pass & Seymour, Inc., Solvay, N. Y., states that it is not building, as reported, and has no intention of doing so.

The H. W. Wolcott Co., Inc., Buffalo, has been incorporated with a capital of $200,000 to manufacture electric batteries and other products. Charles W. and William H. Gabriel, Cleveland, and Herbert W. Wolcott, Buffalo, are the incorporators.

The Warner Jewelry Case Co., 646 Michigan Avenue, Buffalo, has increased its capital from $20,000 to $50,000.

The Cousins & Son Boiler Works, Wabash Street, Buffalo, is planning to have its new one-story boiler plant, 85 x 120 ft., now in course of erection at Tifft and Hopkins streets, ready for operation about the middle of September.

The Air Reduction Sales Co., 584 Carroll Street, Buffalo, is having plans prepared for a new one-story reinforced-concrete plant, 60 x 100 ft., on property recently acquired on Grant Street, fronting on the New York Central Railroad.

The Nash Buffalo Corporation, Buffalo, has been incorporated with a capital of $78,750 to manufacture machinery, motors, etc. Alburn E. Skinner, Westfield, N. Y.; C. H. Bowker, North Adams, Mass.; and Charles B. Warren, 255 West End Avenue, New York, are the incorporators.

The Pierce-Arrow Motor Car Co., 1695 Elmwood Avenue, Buffalo, has awarded a contract to Stone & Webster, Boston, Mass., for the construction of a new electric power plant at its works on North Elmwood Avenue, to cost about $300,000. It is also taking bids for a one-story addition, 50 x 100 ft., to be used for testing work. In connection with the recent contract received for airplane motors of the Hispano-Suiza type, the company has announced that no extensions will be required, the present plant being capable of handling a production of about 50 motors per day, effective Jan. 1, as now planned, with the installation of new equipment as required. It is understood that the motor will be the only airplane part to be manufactured by the company. The works are now giving employment to about 8000 men.

The Curtiss Aeroplane & Motor Corporation, 1738 Elmwood Avenue, Buffalo, will continue the operation of its plant on Austin Street, recently announced to be discontinued, and has renewed a lease for the property. Early in September, it is understood, the company will commence the manufacture of S-E-5 types of airplanes at its works. James E. Kepperly is general manager.

The Oswego, N. Y., repair shops of the New York Central Railroad Co. will in the future be used for the repair and rebuilding of all foreign cars belonging to other roads coming in this territory. Heretofore such cars have been repaired only sufficiently to allow them to reach their destinations. Over 500 men are now employed at the works, and it is said that this number will soon be increased.

The Ogden Multiplier Co., Binghamton, N. Y., has been incorporated with a capital of $100,000 to manufacture special machinery. W. H. Ogden, F. W. Welch and H. E. Woodward, Binghamton, are the incorporators.

New England

BOSTON, Aug. 24.

In the New England machine tool business makers are very busy, the bulk of their orders coming from the Middle West, where the new Government contracts are being largely placed. All the plants appear to be at the peak of production so far as is possible with the labor supply and with the bad transportation conditions which show no improvement. Owing to the comparatively few small shops in the Middle West that are equipped to make tools, gages, jigs and fixtures, numerous New England plants that specialize in these lines are beginning to be flooded with inquiries from that district. This is being reflected in the sales of tool room equipment to these tool, gage, jig and fixture shops.

Except in the 18 and 20-in. sizes, there is a very great scarcity of lathes, and it is practically impossible to obtain universal milling machines. There is a very heavy demand for the larger sizes of drill presses.

The labor situation is unchanged and appears likely to be quiet until the recent and pending wage awards have been made operative and their full effects seen.

The McIntosh Machinery Co., Worcester, Mass., has been incorporated with authorized capital stock of $100,000. George A. McIntosh is president and Hartley S. Lohnes, 750 Belmont Street, Watertown, treasurer.

The Eastern Malleable Iron Co., Bridgeport, Conn., has awarded to the Schwarz Brothers Co. a contract for an addition, 38 x 266 ft., two stories.

J. P. Baxter, Portland, Me., is having alterations costing $3,000 made to the machine shop, 34 Portland Pier, occupied by Howard & Horn.

The Penobscot Foundry Co., Bangor, Me., has been incorporated, with authorized capital stock of $20,000, to operate a foundry and machine shop. Harry J. Russell is president and Abram Brown, treasurer.

The Magnus Co., Inc., New Haven, Conn., has awarded to the Sperry Engineering Co. a contract for an addition, 50 x 80 ft., one story.

Johnson's Brass Foundry Co., Pawtucket, R. I., has been incorporated with authorized capital stock of $10,000 by Herbert Johnson, 388 Orms Street, Providence, Fred Sheriff and James E. Brennan, Pawtucket.

The Holmes Mfg. Co., Shelton, Conn., has awarded a contract to the Sperry Engineering Co. for an addition, 50 x 100 ft., one story, and a boiler house, 18 x 20 ft.

The Cobb Control Mfg. Co., Boston, has been incorporated with authorized capital stock of $50,000 to manufacture mechanical and electrical devices. Albert B. Cobb is president and James H. Woods treasurer.

The Bureau of Yards and Docks, Navy Department, is asking bids on additions to the machine shops and foundry at the Boston Navy Yard, to cost $900,000.

The Jenney Electric Mfg. Co., Brockton, Mass., has been incorporated with authorized capital stock of $100,000. Arthur E. Jenney is president and Herbert W. Patton, 11 Radford Lane, Boston, treasurer.

The United States Light & Heat Co., Niagara Falls, N. Y., has awarded a contract to the E. J. Cross Co., Worcester, for a one-story factory on Union Street, Worcester, having 17,000 sq. ft. of floor space and costing $50,000.

The Providence Needle Co., Providence, R. I., has been incorporated with authorized capital stock of $200,000 by Philip C. Joslin, Ira Marcus and Daniel J. Healey.

The Rockwood Sprinkler Co of Massachusetts, Worcester, Mass., is to build an addition, 100 x 300 ft., one story.

The Pratt & Cady Co., Hartford, Conn., has purchased the property on Cushman Street of J. B. Davis & Son, including a large tract of land and two brick buildings. The company will use the plant for the expansion of its business. The manufacture of water meters and pumps, which was carried on by I. B. Davis & Son, will be continued.

Landers, Frary & Clark, New Britain, Conn., have received Government contracts for 500,000 bayonets and 2,000,000 army mess knives.

The Union Mfg. Co., New Britain, Conn., has awarded a

contract to the Ellison Construction Co., Hartford, for an addition, 18 x 120 ft., one story.

The Morse Twist Drill & Machine Co., New Bedford, Mass., has awarded to the Z. B. Davis Corporation a contract for an addition, 14 x 27 ft., two stories.

The Locomobile Co. of America, Bridgeport, Conn., is reported to be about to begin the construction of another addition which will be used for the manufacture of tanks.

The Scoville Mfg. Co., Waterbury, Conn., is to build an addition to its pipe shop, 40 x 52 ft., one story.

The Risdon Tool & Machine Co., Naugatuck, Conn., has purchased the plant of the Novelty Mfg. Co., Waterbury, which will be adapted to take over the work of the new owner. The Risdon Tool & Machine Co., which started in a small way, has grown very rapidly in the last two years and with its new acquisition will employ about 600 men.

The cleaning shop of the Charles G. Allen Co., Barre, Mass., was destroyed by fire, Aug. 21, with a loss of about $10,000. The shop was the original plant of the Heald Machine Co., now located in Worcester, and was about 75 years old.

The Barnum Forge Co., Stratford, Conn., has increased its capital stock from $4,500 to $25,000.

Philadelphia

PHILADELPHIA, Aug. 26.

The Marlin-Rockwell Corporation, 347 Madison Avenue, New York, has acquired the plant and equipment of the Richmond Radiator Co., Tacony and Devereaux streets, Philadelphia, for a consideration said to be $250,000. It is understood that it will be used by the company in connection with Government contracts for munitions, and will be operated in conjunction with the radiator division on South Boulevard and 143d Street, New York, as well as with its subsidiary plant, the Standard Roller Bearing Co., Fiftieth Street and Lancaster Avenue, Philadelphia. It is also understood that the company has acquired a controlling interest in the Braeburn Steel Co., Braeburn, Pa., for a consideration of $1,000,000.

The Barrett Mfg. Co., Margaret and Bermuda streets, Philadelphia, has awarded a contract to the Turner Concrete Steel Co. for the construction of a four-story steel and concrete building, 40 x 50 ft., and a two-story factory, 50 x 60 ft. The company is planning to dissolve its subsidiary organizations and consolidate these interests with the parent company.

The Hurlburt Motor Truck Co., Third Avenue and Harlem River, New York, is building a branch factory on Broad Street, near Columbia Avenue, Philadelphia. P. C. Chrysler is manager of the local works.

The Burn-All Fuel-Saving Corporation, Philadelphia, has been incorporated in Delaware with a capital of $25,000 to manufacture mechanical systems for fuel saving. O. B. and C. E. Day are the principal incorporators.

The Midvale Steel & Ordnance Co., Widener Building, Philadelphia, will build a one-story addition to its Remington Arms plant at Eddystone, 60 x 225 ft., to cost $15,000.

The G. & H. Barnet Co., 1076 Frankford Street, Philadelphia, manufacturer of files, rasps, etc., has filed plans for a one-story brick and steel addition to its forge shop, 32 x 134 ft., on Richmond Street, to cost about $9,000. The company is operated by the Nicholson File Co., Providence, R. I.

The Philadelphia & Reading Railroad, Reading Terminal, Philadelphia, has awarded a contract to the Roydhouse-Arey Co., 112 North Broad Street, for a one-story machine shop, 20 x 110 ft., power plant, 36 x 77 ft., engine house, 100 x 220 ft., and auxiliary structures, at Didier, near Bethlehem, Pa.

The Brewer Brothers Co., 614 Filbert Street, Philadelphia, manufacturer of hardware, and operating machine repair shops, has acquired the two-story shop and adjoining building at Second and Somerset streets, which will be used for extensions.

The Lutz Co., Inc., Thirty-first Street and Grays Ferry Road, Philadelphia, manufacturer of machinery and parts, will erect a three-story brick addition to its plant No. 2 at Morris and Bambrey streets, to cost about $15,000.

The Pennsylvania Railroad Co., Philadelphia, is having plans prepared for a one-story machine shop, 80 x 83 ft., at Stoney Creek, Pa. The new plant at Morrisville, Pa., will be used as a molding and manufacturing works for the construction of reinforced-concrete girders, beams, slabs, etc. The initial plant will cost about $300,000, and will be located near the site of the proposed locomotive works which the company is said to be planning in this section. It is also having plans prepared for a one-story brick and concrete addition to its engine house at Phillipsburg, N. J., about 27 x 45 ft.

The Diener Mfg. Co., Camden, N. J., has been incorporated with a capital of $100,000 to manufacture tools. Frank S. Diener, John H. Gledhill and Ronald E. Coolbauch, Camden, are the incorporators.

The McClanahan Stone Machine Co., Gaysport, near Hollidaysburg, Pa., manufacturer of iron and steel castings, machinery, etc., has broken ground for a one-story foundry, 85 x 100 ft., and a one-story machine shop, 31 x 35 ft., at Wall and Jackson streets, to replace the structures recently destroyed by fire.

The Freeland Foundry & Machinery Co., Hazleton, Pa., will devote operations at its works to the manufacture of ship propellers for the Government. A contract has recently been received.

The Pennsylvania National Rubber Co., Harrisburg, Pa., has been incorporated with a capital of $50,000 to manufacture rubber products. The incorporators, E. M. Jauss, Elmer E. Erb, and M. C. Miller, all of Harrisburg, have also incorporated the West Virginia National Rubber Co., the Maryland National Rubber Co., the New York National Rubber Co., the Ohio National Rubber Co., and the Iowa National Rubber Co., each with the same capital, to manufacture rubber goods in the respective territories.

The Sheldon Axle & Spring Co., Conyngham Avenue, Wilkes-Barre, Pa., will equip the addition to its present plant as a finishing department for automobile axles. The structure will be 125 x 270 ft., and cost $75,000. Another one-story addition 40 x 100 ft., to cost $6,000, will also be built.

Baltimore

BALTIMORE, Aug. 26.

The Baltimore & Ohio Railroad Co., Baltimore, is arranging for the immediate erection of a new plant at Cumberland, Md., for the repair and dismantling of rolling stock. The initial works will consist of an erecting shop with capacity of 40 locomotives monthly, machine shop, classifying building, and other structures, with cranes for operation. All machine tools and other equipment will be motor driven where possible. The purpose of the new plant will be to dismantle damaged and condemned steel cars, reclaiming the good parts and distributing to other sections of the road, assorting the scrap, etc.

The Safer Aircraft Co., Washington, D. C., has been incorporate in Delaware with a capital of $1,000,000 to manufacture aircraft. F. C. Greene, O. E. and A. M. Guger, all of Washington, are the incorporators.

The Hampton Roads Machine Repairs Corporation, Newport News, Va., has been incorporated with a capital of $25,000. L. U. Noland and M. W. Gayle are the principal incorporators.

The Virginia Metal Mfg. Co., Roanoke, Va., has been incorporated with a capital of $10,000 to manufacture metal products. P. W. Gregory, Roanoke; and R. C. Phillips, Middletown, Ohio, are the principal incorporators.

The Atlantic Iron Works, Norfolk, Va., has filed plans for the erection of a two-story shop, 50 x 122 ft., on Water Street, to cost about $17,000.

The Chesapeake & Ohio Railroad Co., Richmond, Va., will soon commence the erection of a one-story foundry 50 x 245 ft., to cost about $50,000; one-story machine shop with lean-to extensions, about 43 x 200 ft., to cost $100,000; and one-story locomotive shop, 110 x 400 ft., to cost about $200,000. The Arnold Co., South La Salle Street, Chicago, is engineer.

The Ordnance Department, Washington, D. C., has awarded a contract to the Foundation Co., 233 Broadway, New York, for the construction of a new shell-loading plant at Seven Pines, Va. The work includes a housing development for employees. Plans are also being prepared for the erection of an electric light plant and waterworks for the new industrial section.

The Penrod Walnut & Veneer Co., Roanoke, Va., is considering the erection of a new works for the manufacture of gunstocks, airplanes, propellers, and other specialties, to have a capacity of about 50,000 gunstocks per month. The home office is at Kansas City, Mo. W. S. Smith is manager.

The Carolina Airplane Co., Raleigh, N. C., is planning for the erection of a new plant at Goldsboro. H. L. Atwood is president.

The Jacksonville Dry Docks & Repair Co., Jacksonville, Fla., has been incorporated with a capital of $750,000 to operate a plant for the construction of steel vessels. The incorporators, E. F. Terry, J. W. Hollister, and S. L. Waller, have also incorporated the Brittain Shipbuilding Co., Jacksonville, with a capital of $1,000,000, to build steel vessels.

Chicago

CHICAGO, Aug. 26.

The demand for machine tools continues good. While no large lots have been purchased there have been many small orders, making in all a very satisfactory volume, particularly in tool room equipment.

The second-hand machinery market has shown some improvement.

The Velie Motor Vehicle Co., Moline, Ill., has received a contract for 100 tractors, which later will be enlarged to 1000. Additional equipment is being sought. This company is also working on motor trucks for the army. The Rock Island Arsenal, Rock Island, Ill., will buy a new list of tools. The L. Wolff Mfg. Co., Chicago, has received a contract for large shells.

The Protectu Corporation, Chicago, has been incorporated in Delaware with a capital of $2,500,000 to manufacture check protecting machines. D. B. McDonald, J. T. Guerin and R. W. Nogle, Chicago, are the incorporators.

The Connolly Iron Sponge & Governor Co., Chicago, will build a new one-story brick factory on South California Avenue to cost $9,000.

The Montana Tractor Co., Chicago, has been incorporated with a capital of $1,000,000 under Delaware laws to manufacture trucks and tractors. Samuel C. Wood and A. D. Springer, Chicago, are the incorporators.

The Moline Plow Co., Moline, Ill., manufacturer of agricultural implements, has arranged for an issue of $6,000,000 in notes, part of which will be used for extensions and expansion.

Bids were closed yesterday by the Elgin, Joliet & Eastern Railroad for a considerable lot of equipment. The Winslow Brothers Co. has purchased several grinding machines. The Davenport Locomotive Co. bought a considerable lot of tools, aggregating over $30,000. Local dealers are showing considerable interest in the list understood to have been issued by the Baldwin Locomotive Works, covering equipment for its Chicago plant. This business is to be placed in Philadelphia, but bids will presumably be made by local interests.

In this connection, considerable chagrin is expressed over the fact that large Eastern companies, which recently established plants in the Chicago district, have placed their orders with dealers outside of this territory. Although adjustments of commissions in such instances are made by machine-tool manufacturers, at the same time it is thought that better service could be obtained if the buying were done here.

The Western Foundry & Machine Co., Moline, Ill., has taken over the foundry of the Wahle Foundry & Machine Co., Davenport, Iowa, which it will also operate.

The Hawkeye Steel Co., Davenport, Iowa, has been incorporated with a capital of $25,000 by Oswald Becker, C. H. Atherton and J. E. Burmeister.

The Warner Gear Co., Muncie, Ind., has awarded a contract to the Austin Co., Cleveland, for a new plant to cost $75,000.

The Elco Tool Corporation, Rockford, Ill., has been incorporated with a capital of $28,000 by Fred P. Spoberg, Evar Lagerholm and Otto Lundell.

The Wood Equipment Co., Chicago, manufacturer of mining machinery, has purchased property at Seventy-fourth Street and Noble Court, and will remodel the buildings.

Milwaukee

MILWAUKEE, Aug. 26.

The needs of Middle Western industries which are being converted into war work production continue to furnish local machine-tool manufacturers with a large volume of new business, principally single tools or small lots. The demand for tools from the East shows further slackening, although inquiries indicate that there is considerable business in sight. The capacity of local tool builders is kept fully occupied and it is necessary to maintain production at the same high rate of past months so that deliveries may not fall further behind. Makers of milling machines continue to be particularly pressed for deliveries. Requirements of these tools are more nearly equalized between the light and heavy types than for some time, when the bulk of demand ran into the heavier machines.

Shipbuilders in Wisconsin are overcoming the shortage of machine and boiler shop equipment by acquiring round lots of existing plants nearby, thus insuring immediate supplies. In the development of several yards the undertaking of steel vessel construction has been delayed because of the difficulty in obtaining metal-working equipment and it has been found necessary to continue wooden shipbuilding alone, pending procurement of fabricating tools and kindred equipment.

The Janesville Machine Co., Janesville, Wis., recently acquired by the General Motors Corporations, Detroit and New York, has awarded contracts for the construction of the first unit of its new farm tractor plant on a 125-acre site in Janesville. The building will be 216 x 540 ft., with a wing, 50 x 250 ft., one-story, of brick and steel construction, and will provide approximately 125,000 sq. ft. of floor space. The first unit will be equipped principally for machine work, assembling and erecting, testing and shipping. The second unit probably will be a gray-iron foundry, but definite information has not been announced. Completion of the first shop is specified in 60 days and it is intended to have the plant ready to begin production shortly after Nov. 1. The project is in charge of Frank D. Chase, consulting engineer, 122 South Michigan Avenue, Chicago. J. A. Craig is president and general manager.

The Universal Shipbuilding Co., Sturgeon Bay, Wis., which on June 1 took over the wooden shipbuilding plant of Rieboldt, Wolter & Co., and is now constructing three sea-going tugs for the Emergency Fleet Corporation, is making provision for steel vessel construction. The company has acquired the property of the Hess Boiler Works, Green Bay, Wis., and will transport the equipment, stock etc., to Sturgeon Bay, for installation in a brick building now being completed. A wood-working shop, containing sawmill, planing mill and molding room, is also under construction. William J. Hess, chief owner of the Hess Boiler Works, has become associated with the Universal company and will act as general superintendent of the metal-working division.

The Standard Steel Corporation, 908 Majestic Building, Milwaukee, has amended its articles of incorporation to do a general line of machine-work in addition to manufacturing farm concrete mixers, and barn equipment, etc. The company is operating in temporary quarters at 491 Virginia Street, but is erecting a new plant costing about $50,000 at Hopkins and Lake streets, which will be ready about Oct. 15. E. J. De Guenther is president and general manager.

The Invincible Metal Furniture Co., Manitowoc, Wis., has increased its capital stock from $50,000 to $100,000 to cover enlargement of the plant and business. J. M. Stauffacher is secretary.

The International Steel Products Co., Hartford, Wis., has been formed by Chicago, Milwaukee and Hartford capital, and will erect a sheet metal-working shop costing about $50,000 to specialize in the manufacture of a silencer for gas engines, used extensively on motor trucks built for the Government. Three and one-half acres near the plant of the Kissel Motor Car Co., Hartford, has been acquired for the new factory. Plans are being completed for the first unit, which it is hoped to make ready for operation within 90 days. In addition to the muffler, other pressed steel and sheet metal products will be manufactured.

Swift & Co., Second and Fowler streets, Milwaukee, will build a power plant addition costing about $75,000 in connection with the works of the Plankinton Packing Co., Muskego Avenue and Canal Street.

The Tomahawk Light, Telephone & Improvement Co., Tomahawk, Wis., will make additions to and improvements in its hydroelectric power plant on the Tomahawk River at an estimated cost of $15,000.

The Chippewa Foundry & Machine Co., Chippewa Falls, Wis., which recently increased its capital stock from $25,000 to $250,000, is enlarging its output of Hannigan pumps in various capacities, from 330 gal. per hr. to 30,000 gal. per hr.

The board of vocational education, Madison, Wis., is having tentative plans prepared for a new industrial school, the first unit to cost about $100,000 and intended to be erected this year, contingent upon Government authority. Thomas G. Murray is chairman of the board.

Cleveland

CLEVELAND, Aug. 26.

Local machinery dealers have received an inquiry from the Baldwin Locomotive Works for a large amount of machinery for the equipment of its Chicago plant. The list includes 1049 machines, mostly large planers, boring mills, lathes and large tools for locomotive work, from 25 to 30 turret lathes, and a few wood-working machines. This is the only list of any size that has come out in the local market the past week. The general demand for machinery, however, is more active than in the last few weeks, dealers reporting a very good inquiry for single machines and lots up to 2 or 4. The demand is largely for milling machines, lathes, radial drills

and shapers. The market for shapers has become unusually active. The American Shipbuilding Co. has issued a new list for large machines against which it is now makng purchases. The Garford Mfg. Co., Elyria, is figuring on a Government order which if it receives will necessitate the purchase of about 50 plain milling machines. The Northway Motor & Mfg. Co., Detroit, placed 10 multiple spindle drilling machines with a local machinery house, which also took a large steam hammer for a Detroit plant. The Vichek Tool Co., Cleveland, placed an order for four broad drop hammers for a new forge plant which it contemplates building shortly and later will purchase machine-tool equipment. The American Steel & Machinery Co., Mansfield, will require additional machinery for extensions. The Wellman-Seaver-Morgan Co., Cleveland, is also inquiring for additional equipment. The demand for punching and shearing machines has fallen off materially the past week or two, indicating that the shipyards have pretty well covered for their requirements.

The American Shipbuilding Co., Cleveland, has issued a new list which includes a 10 ft. planer, 84 in. boring mill, two 4 ft. radial drills, 36 in. x 20 ft. lathe, two 18 in. x 16 ft. lathes, 24 in. shaper, 10 in. x 10 in. band saw, 25 in. x 25 in. x 8 ft, slab milling machine and a No. 1½ universal milling machine.

The Ohio Blower Co., Cleveland, is planning extensions to its Orville, Ohio, plant which include the duplication of its present foundry, the erection of a pattern shop and enlargement of its machine shop.

The American Steel & Machinery Co., Mansfield, Ohio, which has about completed a new plant for Government work, will erect several additional buildings, consisting of a forge shop, 127 x 400 ft.; steel foundry, 180 x 300 ft.; annealing department, 130 x 336 ft.; boiler room, 148 x 228 ft., and two other buildings, 87 x 320 ft. and 121 x 320 ft. The plant will be used for the manufacture of machinery and machine tools, heat treating shells and other Government work. The company recently took an order for 25 marine engines for the Emergency Fleet Corporation.

The Hughes-Keenan Co., Mansfield, Ohio, has acquired an 8-acre site on which it will build a new plant for the fabrication of steel. This company recently increased its capital stock from $25,000 to $200,000.

The C. & G. Cooper Co., Mt. Vernon, Ohio, announces that it will devote its entire shop facilities to the manufacture of machinery for the Government for the duration of the war and expects shortly to be operating at practically 100 per cent. Additional machinery will be installed. The company recently took an order for 25 100 hp. marine engines for the Emergency Fleet Corporation.

The International Harvester Co. has leased the plant of the Seneca Chain Co., Kent, Ohio, which has been idle for some time. It is stated that the plant will be used for assembling motor trucks.

The American Welding & Mfg. Co., Warren, Ohio, recently organized, has completed its new plant, 100 x 260 ft., which is being placed in operation. It will manufacture motor truck bands, bases for solid rubber tires, gear and chuck ring bands, bands and wheels for farm tractors and steel tires for Government artillery and escort wagons. J. C. Manternach, for several years factory manager of the welding plant of the Standard Parts Co., Cleveland, is president and general manager; C. W. Gressle, formerly superintendent and factory manager of the same plant, vice-president; G. A. Geiger, treasurer, and F. D. Templeton, secretary.

The Mathews Engineering Co., Sandusky, Ohio, will erect a new factory, 100 x 350 ft., adjoining its present plant. It will be one story, of brick and steel, and will be used for machine shop purposes, erecting, testing and shipping. The general contract has been placed with the Crowell-Lundoff-Little Co., Cleveland.

The Evans Auto Signal Co., Canton, Ohio, has been incorporated with a capital stock of $75,000 by David Seitner, Edward Hambechuen and others to manufacture an electric automobile signal.

It is announced that the Doehler Die Casting Co., Toledo, has recently taken an order for 6,000,000 hand grenades.

The Baltimore & Ohio Railroad will make extensive improvements to its Lorain, Ohio, shops, an expenditure of $156,000 having been authorized by the Railroad Administration. The additions will include a machine shop, boiler shop and tool room.

The Goodyear Tire & Rubber Co., Akron, Ohio, will build a power plant and has placed the contract with the Hunkin-Conkey Construction Co., Cleveland.

The James B. Clow & Sons, Coshocton, Ohio, are planning for the erection of a new machine shop.

Cincinnati

CINCINNATI, Aug. 26.

There has been no let-up in this section in the demand for machine tools. If anything, inquiry is increasing, especially for medium and large sized lathes. Some inquiries are from the railroads, but most of them come from firms engaged in war work. It is intimated that several stove founders will install equipment for making hand grenades and finishing them in their own plants. Nothing definite, however, is obtainable now, but it is known that nearly all manufacturers in this line are looking for essential work.

Second-hand machinery business is not good. The larger machine tools that are offered are usually commandeered by the Government, and the smaller machines are scarce and not in much demand. Boiler and tank makers are confining themselves strictly to essential work, but even with priority orders they are unable to get a sufficient supply of plates to keep their plants running at capacity at all times.

The phenomenal demand for portable electric drilling machines for export and domestic firms is increasing.

The Cincinnati Bickford Tool Co. has practically finished installing equipment in its new addition and will have it in operation by Sept. 1.

The Victor Safe & Lock Co., Cincinnati, is reported to have a large war contract for machining cannon. No confirmation of this rumor can be obtained.

The Alvey-Ferguson Co., Cincinnati, has awarded contract to the Leibold Gott Building Co., Cincinnati, for a one-story addition to its plant in Oakley.

The Cincinnati Globe Brass Co. has been incorporated with $10,000 capital stock. The company was formerly operated as the Globe Brass Co. and makes a specialty of aluminum and brass castings. No additions to its plant are contemplated.

It is rumored that the Dalton Adding Machine Co., Cincinnati, will add equipment to its plant in Norwood for the manufacture of automatic pistols.

The Long & Alstatter Co., Hamilton, Ohio, has commenced work on the construction of a new foundry adjoining its plant.

It is reported that the proposed tractor plant of Henry Ford & Son., Inc., to be erected at Hamilton, Ohio, will be double the capacity originally planned. Work will begin at an early date.

The Auto Aero Co., Columbus, Ohio, has been incorporated with $150,000 capital stock by Charles Smith and others. It has secured a building on West Broad Street and will manufacture aircraft and motor vehicles.

The Portsmouth Refractories Co., Portsmouth, Ohio, is making several additions to its plant in East Portsmouth.

Indianapolis

INDIANAPOLIS, Aug. 26.

Among recent war contracts obtained by Indiana companies are the following: England-Matthews Range Co., South Bend, army ranges; Haskell-Barker Car Co., Michigan City, refrigerator cars; E. C. Atkins & Co., Indianapolis, saws, hammers, files, etc.; Evansville Tool Works, Evansville, hand chipping hammers; Packard Piano Co., Fort Wayne, combat propellers for engines; Diamond Chain & Mfg. Co., Indianapolis, motorcycle repair links; Link-Belt Co., Indianapolis, sawmill link belts; Chapman Steel Co., Indianapolis, individual shelters; American Lawn Mower Co., Muncie, field desks; Superior Machine Tool Co., Kokomo, Ind., drilling machines; Columbus Handle & Tool Co., earth tampers; Studebaker Corporation, South Bend, artillery wheel fasteners and hubs; Wright Shovel Co., Anderson, shovels; Spacke Machine & Tool Co., Indianapolis, experimental rifle grenades; Wayne Oil Tank & Pump Co., Fort Wayne, tank gasoline pumps.

An appropriation of $95,000 has been made by the City Council, Anderson, Ind., for the purchase of boilers for the municipal light plant.

The Indianapolis Screw Products Co., Indianapolis, has been incorporated with $35,000 capital stock to manufacture machinery. The directors are Robert H. Pyle, Croel P. Conder and Earl R. Conder.

The Hoosier Tractor Co. has been incorporated at Frankfort, Ind., with $100,000 capital stock to manufacture tractors. The directors are Cary W. Martin, Geddes Van Brunt and Russel P. Harker.

The Midwest Machinery Co., Evansville, Ind., has been incorporated with $20,000 capital stock to manufacture machinery. The directors are Walter B. Korff, A. N. Hudson and George A. Lutz.

The Huntingburg Machine Works, Huntingburg, Ind., has been incorporated with $15,000 capital stock to manufacture machinery. The directors are Charles Moenkhaus, Louis E. Blemker and William E. Menker.

The Weatherspoon Harrow & Disk Co., Indianapolis, has been incorporated with $20,000 capital stock to manufacture farming implements. The directors are R. A. M. and B. W. Weatherspoon.

The Frank Kopel Mfg. Co., Indianapolis, has been incorporated with $20,000 capital stock to manufacture machinery and to purchase inventions, patents rights, etc. The directors are Frank, A. and J. Kopel.

The Stout-Mahorney-Duckwall Mfg. Co., Salem, Ind., has bought property adjoining its plant, preparatory to enlargements. It has been manufacturing talking machines, but is reported to have obtained war contracts.

The Eclipse Automatic Mfg. Co., Hammond, Ind., has been incorporated with $100,000 capital stock to manufacture machinery. The directors are David A. Johnson, Morris Rothschild and F. Johnson.

The Noble Motor Truck Corporation, Fort Wayne, Ind., has had plans prepared for a new factory, 100 x 192 ft., to be erected immediately.

The Graham Valve Co., Boonville, Ind., has taken bids for the erection of a one-story factory, 50 x 235 ft. A two-story office building will also be constructed.

A one-story boiler plant, 40 x 60 ft., to cost about $14,000 will be erected by the Bemis Indianapolis Bag Co., Barth Avenue, Indianapolis.

St. Louis

ST. LOUIS, Aug. 26.

The Sieloff Packing Co., St. Louis, is in the market for about $6,000 worth of equipment for an addition to its refrigerating plant.

The Manson Mercantile & Gin Co., W. T. Holland and others interested, Manson, Ark., is in the market for about $16,000 worth of cotton ginning and power plant equipment.

The Choctaw County Gin Co., Hugo, Okla., R. D. Wilbor, Charlton Barksdale and others interested, is in the market for about $15,000 worth of cotton gin and power plant equipment.

The Consolidated Public Service Co., Ashdown, Ark., will install additional generating and engine equipment in its electric plant.

Appleton City, Mo., G. C. Shanholtzer, clerk, is in the market for $15,000 worth of additional electric light plant equipment.

The Merchants Light & Power Co., Novinger, Mo., will rebuild its electric plant recently destroyed by fire.

Duncan, Okla., will build an addition to its electric light and power plant and is in the market for the machinery.

The American Car & Foundry Co., St. Louis, will build a two-story machine and pattern shop to cost about $250,000. Brussel & Viterbo, Wright Building, are the architects and engineers.

The Laclede Gas Light Co., St. Louis, whose plans for a munition plant were recently announced, is purchasing the necessary equipment, including lathes, hydraulic presses, heating plant, etc. It will produce 155-mm. and 240-mm. explosive shells.

The Oil City Tool Co., Enid, Okla., Ray Parrish and others interested, will equip a plant for the manufacture of oil well tools, drills, etc.

The Warm Pipe Line Co., Drumright, Okla., a subsidiary of the Sinclair Oil & Refining Co., will equip a 270-mile pipe line, including pumping station, etc., at a cost of about $3,500,000.

The Hale Kerosene Carburetor Co., Independence, Mo., J. A. Abbott and others of Kansas City interested, will equip a plant for the manufacture of carburetors.

The Rowe Fire Apparatus Co., Tulsa, Okla., H. Ernest Rowe and others interested, will equip a plant for the manufacture of fire apparatus.

The Bober Auto Parts Corporation, St. Louis, Frank J. Bober, Arthur V. Schopp and others interested, will equip a plant for the manufacture of automobile parts.

Marianna, Ark., is in the market for boilers and pumping equipment for its waterworks plant.

Fire at Marianna, Ark., destroyed the Arkansas Light & Power Co.'s plant with a loss on equipment of about $40,000.

The mill of the Lock-Moore Lumber Co., Lockport, La., has been destroyed with a loss of $200,000. It will be rebuilt.

The Cotton Belt Lumber Co., Bearden, Ark., is in the market for four 72-in. x 18 ft. boilers and other power plant equipment.

The American Hinge Co., Muskogee, Okla., recently incorporated with capital of $100,000, is contemplating the erection of a plant. J. T. Nichols is president and F. W. Davis, secretary.

The Ornamental Foundry Co., Anniston, Ala., is planning to rebuild its foundry destroyed by fire Aug. 15. The plant has been specializing in the production of cast iron posts.

The new foundry to be erected by the National Steel Products Co., Jefferson County Bank Building, Birmingham, Ala., will consist of a one-story building, 40 x 150 ft., and will be equipped for an initial capacity of about 25 tons of steel castings per day. W. J. Long is president.

Texas

AUSTIN, Aug. 24.

The Bridgeport Cement & Stone Co., Chico, will construct a cement manufacturing plant at a cost of about $1,000,000. It recently purchased the stone crushing plant of the Chico Stone Crusher Co. and will increase its output. C. L. Johnson, who built the plant of the Trinity Portland Cement Co., Dallas, is president.

The machine shop of the Lucey Mfg. Co., Houston, which was recently destroyed by fire, will be rebuilt at a cost of about $100,000. It manufactures oil well equipment and supplies.

The Contractors' Oil Co., Wichita Falls, has been incorporated with a capital stock of $300,000. One of its purposes is to construct and operate an oil refinery. Charles M. Buss is a stockholder.

The Louisiana-Rio Grande Canal Co., McAllen, will install two 48-in. pumps at its second-lift irrigation pumping plant near McAllen at a cost of approximately $200,000. It will also extend its canal system.

California

LOS ANGELES, Aug. 20.

The Pacific Marine Corporation, which is building a plant at San Diego, has been incorporated with a capital of $1,000,000 and has headquarters established in the Timken Building. The organization will be operated by the Scofield Engineering Co., Commercial Trust Building, Philadelphia and San Francisco, with E. M. Scofield as head. The plant will specialize in building concrete-steel vessels, with initial works to comprise 12 buildings, to cost with machinery and equipment about $5,000,000.

The Southwestern Shipbuilding Co., Los Angeles, has filed plans for the construction of additions to its plant at East San Pedro, to cost about $4,000. The work will include tool house, pumping house, shop and smaller buildings.

The Standard Slotted Pipe Co., Los Angeles, has been organized to manufacture special pipe. F. M. Townsend and W. C. Rae, Los Angeles, head the company.

The United Concrete Pipe Co., Fullerton, Cal., has been incorporated with a capital of $50,000 to manufacture pipe. Steven Kral and B. J. Ukropina, Fullerton, and J. L. Milich, Oxnard, are the incorporators.

The National Engineering Corporation, Los Angeles, operating a marine fittings plant at San Pedro Harbor for Government vessels, has leased over four acres adjoining its present works for the erection of additions.

The United Welding Works, Inc., Los Angeles, has been incorporated with a capital of $20,000. G. B. Morgan, C. A. Ryder and M. A. Fleming, Los Angeles, are the incorporators.

The new plant of the Wilson & Willard Mfg. Co., 2411 East Fifteenth Street, Los Angeles, to be located on East Vernon Street, will cost with equipment about $150,000. The machine shop and forge works will be provided with machinery for the manufacture of oil well tools. The works will include a boiler plant and air compressor department. A site, 218 x 605 ft., has been acquired and the structures will be erected in units to facilitate extensions.

The Pacific Shipbuilding & Terminal Co., Long Beach, has been incorporated with a capital of $500,000 to manufacture vessels and proposes to operate a yard in the vicinity of Long Beach. Malcolm H. Murray and W. Frank Fisher, Los Angeles; Arthur G. Lewis and Charles A. Gee, Long Beach, are the incorporators.

The City Power Commission, Los Angeles, has approved plans for the construction of power plant No. 2, of the municipal power system, along the route of the aqueduct San Francisquito Canyon, at a cost of $1,400,000. It will

have a capacity of 28,000 hp. E. F. Scattergood is electrical engineer.

The United States Shipping Board, Washington, D. C., is planning for the construction of a drydock at San Pedro Harbor, Los Angeles, which, it is understood, will be used for repairing vessels in connection with the plants of the Southwestern Shipbuilding Co. and the Los Angeles Shipbuilding & Dry Dock Co. An appropriation of $204,000 has been made for the dredging of a dry dock channel at the harbor and $130,350 for a connecting channel to facilitate operation.

The Regan Forge & Engineering Co., Los Angeles, has been incorporated with a capital of $150,000 to manufacture forgings, etc. James J. and J. M. Regan, and W. J. Ford, Los Angeles, are the incorporators.

The Pacific Northwest

SEATTLE, Aug. 20.

The plant of the Columbia Door Co., Rainier, Ore., was completely destroyed in a recent fire with a loss of $500,000. It was turning out airplane spruce and ship timbers for the Government. W. D. Prue is manager.

The Union Iron Works, Portland, will make alterations and extensions to its plant to take care of Government orders amounting to $100,000.

The Grays Harbor Iron & Machinery Works, Hoquiam, Wash., has been formed by the merger of the Grays Harbor Iron & Steel Co. and the Hoquiam Autogenous Welding Co. The plant of the Grays Harbor Iron & Steel Co. has been taken over for the new company and improvements and extensions are under way. The foundry space has been doubled.

The John M. Robins Sawmill, Klamath Falls, Ore., was destroyed by fire recently, with a loss of $12,000. The mill had a daily capacity of 30,000 ft.

The Patterson-McDonald Shipbuilding Co., Seattle, has awarded contract for its one-story, heavy-timbered foundry building, 90 x 180 ft.

It is stated that the large sawmill originally projected for Lake Pleasant, Wash., by the Siems-Carey-Kerbaugh Co., will be built at Port Angeles, Wash. A site of 140 acres has been selected. Earl Rogers will have charge of the mill and will superintend construction.

The Brackman-Kerr Milling Co., Vancouver, B. C., is constructing a warehouse, 50 x 120 ft., in which will be installed a crushing and grinding plant.

The Columbia Block & Tool Co., Vancouver, B. C., will erect foundry and machine shops at 509 Richards Street, each 50 x 150 ft. and to cost $15,000. A pattern shop will also be included. An electric traveling crane will be installed.

The New Westminster Construction & Engineering Co., New Westminster, B. C., has secured contracts for 10 wooden ships for French interests. Five will be 1500 tons and the remainder 3000 tons.

The plant of the Gilbert Hunt Machine Co., Walla Walla, Wash., has been purchased by the Portland Machinery Co. and will be dismantled and moved to Portland.

The Star Iron Works, Tacoma, Wash., will increase its capital stock from $10,000 to $100,000.

The Factorbilt Car Co., Seattle, has received a contract for the construction of 200 sanitary camp cars, to cost about $500,000, from the Siems-Carey-Kerbaugh Co., Smith Building, Seattle.

The Todd Drydocks, Inc., Seattle, has applied for a permit to erect a general shop building, 100 x 245 ft., one of the first buildings of the proposed new plant on Harbor Island. The structure will cost $15,000.

Construction is progressing rapidly on the buildings and ways of the concrete shipyard of the Great Northern Concrete Shipbuilding Co., Vancouver, Wash. The company holds Government contracts for five 491-ton vessels.

A company composed of J. T. Gregory, T. Y. S. Ballantine and E. V. Wintermote, Tacoma, Wash., will construct a sawmill in that city, with a daily capacity of 90,000 ft. The plant will be electrically operated, each machine having individual motors.

Work has been started on the construction of the proposed new sawmill at Marcola, Ore., by the Fischer Lumber Co. It will have a daily capacity of 150,000 ft. and cost about $100,000.

The Benson Polytechnic School, Portland, will add a one-story brick shop building, 147 x 269 ft., for use in special mechanical courses.

G. Pearson, 612 East Pike Street, Seattle, will build a one-story, heavy timbered machine shop, 59 x 148 ft., to cost $7,000.

The Western Foundry Co., Portland, has been incorporated with $5,000 by R. E. Huffschmidt, Ralph T. Montag and John Van Zante.

Canada

TORONTO, Aug. 26.

The machine shop owned by the Metal Shingle & Siding Co., Ltd., corner St. Catharine and Delorimer streets, which was recently destroyed by fire with a loss of $100,000, will be rebuilt and the company will be in the market for machinery, pulleys, belting, etc.

Contracts have been awarded to the Canadian Engineering & Construction Co., for additions to the plant of the Dominion Foundries, Ltd., Hamilton, Ont., to cost $75,000.

Bids are being received by Gordon Hutton, architect, Bank of Hamilton Building, for a reinforced concrete addition to the factory of the Frost Wire Fence Co., Sherman Avenue North, Hamilton, to cost about $40,000.

The Canadian Consolidated Rubber Co. is receiving bids for an addition to its factory at Kitchener, Ont., to cost $40,000.

The Foundation Co., Ltd., is having plans prepared for an extension to its shipyards at Victoria, B. C.

The Auto Sales Co., Ltd., Owen Sound, Ont., has been incorporated with a capital stock of $10,000 by Eugene C. Spereman, David J. Barss, William J. Craig and others to manufacture automobile parts, etc.

The Niagara Tool & Machinery Co., Ltd., St. Catharines, Ont., has been incorporated with a capital stock of $40,000 by Harry Shortt, Henry H. Collier, Henry G. Hess and others to manufacture tools, machinery, agricultural implements, etc.

The Safety Stove Pipe Co., Ltd., Toronto, has been incorporated with a capital stock of $50,000 by Mervil MacDonald, Andrew Dods, Edwin Smily and others to manufacture stoves, grates, gas and electric ranges, pipe, etc.

W. J. Armstrong, Ltd., Guelph, Ont., has been incorporated with a capital stock of $50,000 by Charles L. Dunbar, Leo W. Goetz, Richard D. Walter and others to manufacture furniture and articles in which wood or metal is used.

The Sarnia Coal & Dock Co., Ltd., Sarnia, Ont., has been incorporated with a capital stock of $20,000 by Peter Paton, Robert I. Towers, John Cowan and others to do business as founders, machinery manufacturers, etc.

The Canada Metal Co., Frazer Avenue, Toronto, has taken out a permit for an addition to its munition building to cost $5,000.

The Hamilton Gear & Machine Co., Van Horne Avenue, Toronto, has commenced the erection of a one-story factory to cost $40,000.

A syndicate in which George Watson, 647 Johnson Street, Victoria, B. C., is manager, will build a floating drydock to be constructed in sections so that additional sections may be added.

The Allandale Lumber Mill owned by Allan E. Hammond, Van Buren, N. B., recently destroyed by fire with a loss of $150,000 will be rebuilt and new machinery purchased.

The Argyle Shipbuilding Co., Tusket, N. S., is having plans prepared for the erection of a plant to cost $100,000.

The Town Council, Tillsonburg, Ont., proposes to install an electric motor and pumps, to be operated in connection with the waterworks pumping plant.

The Canadian Cartridge Co., Ltd., Hamilton, Ont., has secured its third contract from the United States Ordnance Department for large sized cartridge cases which will keep the plant running with day and night shifts for several months.

The National Abrasive Co., Hamilton, has purchased 12 acres adjoining the Cyanamide Co. at Niagara Falls, Ont., and has started construction of its new plant. Five furnaces will be installed, and it is expected that the capacity will be doubled in the spring. The plant will be about twice as large as that at Hamilton.

C. Cholberg of the Cholberg Shipbuilding Co., Victoria, B. C., has leased four acres on the south side of the Songhies Reserve at Mud Bay and will commence at once the erection of a shipbuilding plant.

The A. R. Williams Machinery Co., Ltd., Winnipeg, has purchased the business and plant of the Stuart Machinery Co., Ltd. The business of the Williams company has grown so rapidly that its present premises are entirely too small, and in the acquisition of the Stuart property it plans to increase its operations so as to be able to look after the requirements of machinery users of western Canada. W. H. Young is vice-president and managing director.